DRAFT
Field Observations Report
Alcoa Warrick Operations
Newburgh, Indiana
August 10 – August 13, 2009

Prepared for:

U.S. Environmental Protection Agency
1200 Pennsylvania Avenue
Washington, DC 20460

November 2009

Science Applications International Corporation (SAIC)
12100 Sunset Hills Road
Reston, VA 20190

DRAFT
Field Observations Report
Alcoa Warrick Operations
Newburgh, Indiana
August 10 - 13, 2009

Prepared for:
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue
Washington, DC 20460

Prepared by:
Science Applications International Corporation
12100 Sunset Hills Road
Reston, VA 20190

Submitted:

November 6, 2009

EPA Contract: EP-W-04-046
ETS-2-11(CE)

TABLE OF CONTENTS

Facility Name:	Alcoa Warrick Operations
Alco Warrick Operations Address:	Highway 66, PO Box 10 Newburgh, IN 47629-0010
Plant Owner/Operator:	Alcoa Power Generating Inc. (Owns 3 boilers and 50% of boiler 4) Vectren (Owns 50% of boiler 4)
Owner/Operator Address:	APGI 2300 N. Wright Road Alcoa, TN 37701
Parent Company:	Alcoa, Inc. 390 Park Avenue New York, NY 10022
Dates of Inspection/Sampling:	August 10 – August 13, 2009
Inspectors:	Dan Chachakis, EPA Region 5 (Lead) Jim Rawe, SAIC Jerry Whittum, SAIC Brandon Peebles, SAIC
Point of Contact:	Dennis Wene, Senior Staff Environmental Engineer, Alcoa Warrick Operations

1.0 Introduction

The Waste & Chemical Enforcement Division (WCED), Office of Civil Enforcement, in conjunction with the Office of Compliance and Environmental Protection Agency (EPA) Regions, has initiated an exploratory effort to investigate the extent to which companies in a variety of sectors may have engaged in the illegal disposal of hazardous waste in surface impoundments. This effort is consistent with WCED's goal to target and develop enforcement actions under the Resource Conservation and Recovery Act (RCRA), the Emergency Planning and Community Right-to-Know Act (EPCRA), and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), against persons engaged in significant non-compliance that substantially affects human health or the environment. WCED needs to gather and assess information related to surface impoundments; target facilities with surface impoundments based on risk and other factors; inspect and investigate activities at targeted facilities; develop enforcement actions as appropriate; and assess the data and other information gathered through these efforts.

2.0 Background

2.1 Purpose

EPA inspected the Alcoa coal-fired power plant and co-located aluminum production facility the week of August 10, 2009 to determine compliance with applicable regulations under RCRA, Clean Water Act (CWA), EPCRA and other statues. The previous week, EPA provided notice of the inspection to Alcoa and submitted lists of required documents and sample containers necessary if Alcoa wished to split samples. The investigation focused on determining what types of wastes are generated, how the wastes are managed, and how the wastes are disposed of. Science Applications International Corporation (SAIC) was tasked with assisting in the investigation by providing technical support for EPA. Also, SAIC was tasked and prepared to collect water and soil samples at the facility. These samples were analyzed for compliance with RCRA, CWA, and other relevant statues. This report summarizes the activities performed by SAIC in support of EPA. Information in this report is based on interviews with Alcoa personnel, site observations, and review of documents provided by Alcoa. Other sources of information are noted where applicable.

2.2 Site and Process Description

The Alcoa Inc., Warrick Operations is located 10 miles southeast of Evansville, Indiana on the Ohio River in Newburgh, Indiana. Figure 2-1 is an overhead photo of the plant site. The Warrick Operation is an aluminum processing plant consisting of:

1. Power plant
2. Primary aluminum smelting
3. Ingot casting
4. Finishing with associated storage of raw materials, intermediate and finished products, processed oils, chemicals, and associated wastes
5. Maintenance

The Alcoa Inc., Warrick Operations consist of three integrated aluminum processing plants, and a steam electric generating facility. The aluminum process consists of aluminum smelting, ingot casting, hot and cold rolling, and coal preparation/coating operations. The primary product produced is coated aluminum sheet for the food and beverage can industry. Approximately 1,542 tons of alumina is barged into the plant each day. Alcoa Warrick operates six potlines that can produce 1.6 million pounds of aluminum per day. The potlines smelt refined alumina into molten aluminum. The aluminum is cast into ingots in the Ingot Area. The ingots are then scalped, pre-heated, and hot rolled into coils. The coils are cold rolled to their desired thickness. During the Finishing Department of the process, the coils are then washed, prepped, and coated for final slitting. The slitted coils are packaged and shipped to the customers.

The Alcoa Warrick Generating Corporation, a division of Alcoa Power Generating Incorporated, operates a 732 megawatt (MW) coal-fired steam electric generating plant composed of four generators. Units 1, 2, and 3 each operate at 144 megawatts. Each of these units is owned by Alcoa and began operation in the early 1960’s. Unit 4 operates at 320 megawatts. Unit 4 is half-owned by Alcoa and Vectren and began commercial operation in 1970. In addition to electrical power, the Alcoa Warrick Generating Station supplies smelter steam, high temperature water and potable water.

Coal arrives at the facility by truck, rail, and barge. All coal is stored in the stockpile area east of Ashpond A. The coal arriving by truck is sent to the coal stockpile area to be either dumped in the stockpile area or dumped into a hopper that feeds directly into the plant. Coal arriving by rail is offloaded in a rotary car dumper that feeds into a hopper. The rail coal is fed directly into the plant or diverted to the stockpile area, depending on the plant’s need for coal. Once the barge coal arrives, it is offloaded at the barge unloading facility into a land hopper and trucked to the stockpile area. The coal in the stockpile area is blended using bulldozers and other equipment. In order to prepare the coal for combustion, it is pulverized to powder in one of 19 ball mills. The powder coal is blown into the boilers for combustion. Coal pile runoff is directed into ditches which flow into the ash pond treatment system.

Table 2-1. Alcoa Generating Units

Unit Number	Size (MW)	Commissioning Date	Fuel	Burner Type	Particulate Control	NOx Control	SO_2 Control
1	144	April 1960	Coal (bituminous) fired	Low NOx with over-fire air	ESP	None	FGD
2	144	January 1964	Coal (bituminous) fired	Low NOx with over-fire air	ESP	None	FGD
3	144	October 1965	Coal (bituminous) fired	Low NOx with over-fire air	ESP	None	FGD
4	320	March 1968	Coal (bituminous) fired	Low NOx	ESP	SCR	FGD

ESP = electrostatic precipitator
SCR = selective catalytic reduction using ammonia
FGD = flue gas desulfurization using limestone slurry
*Most of the information in the above table was received from an Alcoa representative post-inspection.

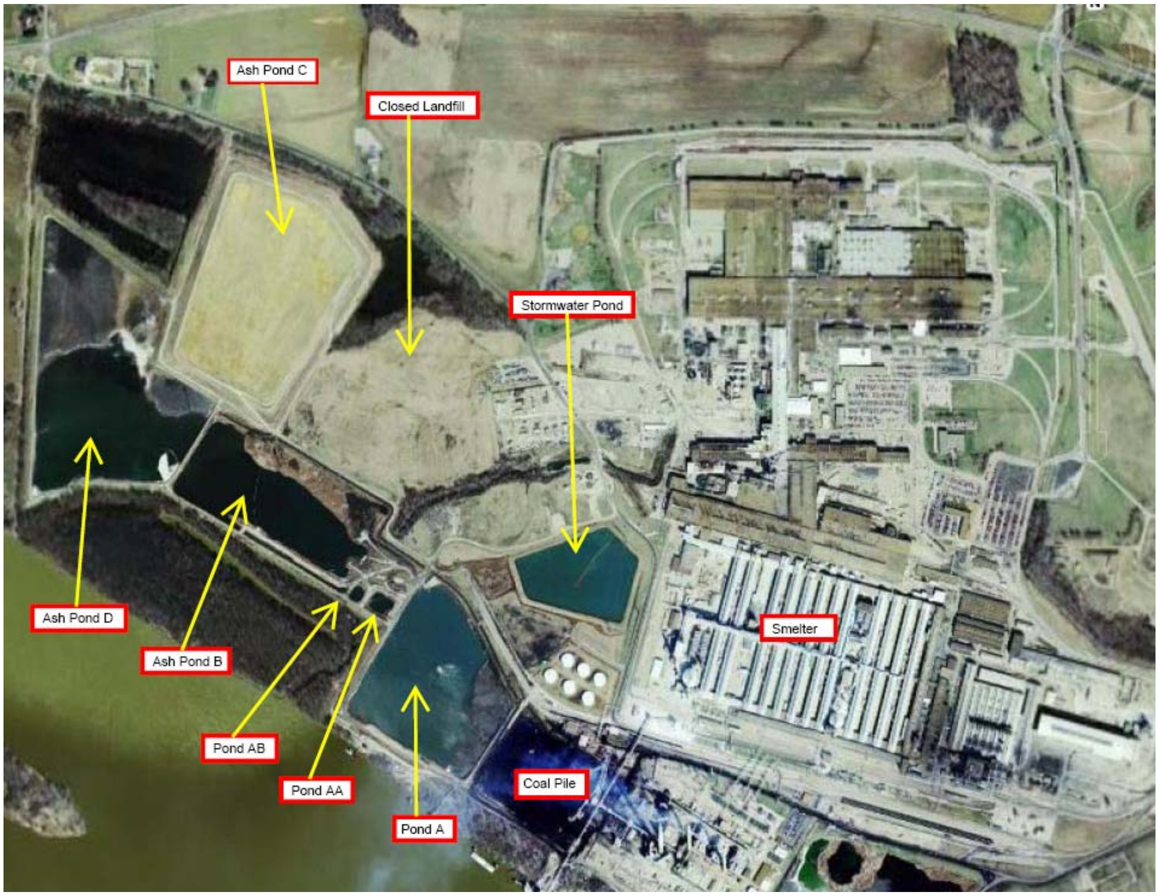


Figure 2-1. Overhead View of Alcoa Manufacturing Site and Power Plant

2.3 Major Raw Materials and Waste Streams

Alcoa utilizes coal, limestone, alumina, coke, and pitch in the process of generating electricity and aluminum. Coal is used to fuel the boilers. In all four units, the coal is pulverized and blown into boilers where it is combusted to create heat in the fireside of the boiler. There are 19 Babcock and Wilcox, EL-76 pulverizers that grind and dry approximately 20 tons of coal per hour. The four boilers turn condensate into the steam required to propel the turbines, which in turn produces electricity. Particulate removal is accomplished by electrostatic precipitators. The SCR utilizes ammonia and catalyst for NOx control and the flue gas desulfurization units uses limestone for SO_2 control. Unit 4 is the only unit that utilizes SCR for NOx control, while all four units use FGD for SO_2 control. Aluminum, coke, and pitch are all major raw materials used in the operations for aluminum smelting. Alumina is used for aluminum production, while coke and pitch are used for anode production. Major raw materials such as alloy metals, rolling lubricants, and coatings are used for aluminum forming.

Table 2-2. Alcoa Major Raw Materials Used

Raw Material	2008 Usage	Purpose
Power Plant		
Coal	2.5 million tons	Power generation/fuel for boilers
Limestone	54,000 tons	Air emission control/SO_2 control in FGD units
Aluminum Smelting Operations		
Alumina	570,000 tons	Aluminum production
Coke	100,000 tons	Anode production
Pitch	30,000 tons	Anode production
Aluminum Forming Operations		
Alloy metals	3,000 tons	N/A
Rolling lubricants	25,000 gallons	N/A
Coatings	~3,500,000 gallons of coatings and thinners	N/A

*N/A – Not available
*Information in the above table was received from an Alcoa representative post-inspection.

Bottom ash and fly ash are two of the largest waste streams and are Bevill-exempt RCRA wastes. They are sluiced for transport via pipes to the ash ponds. Coal pile run-off is also a Bevill-exempt waste; it is collected and discharged to the ash ponds.

Non-uniquely associated wastes include cooling tower blowdown, wastewater from demineralizer backwash, bearing cooling water, boiler and evaporative blowdown, and wastewater from floor and roof drains. These wastewater streams flow via pipes to the ash ponds. Along the way, Outfall 004, Outfall 005, and the Main Sump also mix with these wastewater streams from the power plant before discharging to the ash ponds.

Table 2-3. Alcoa Significant Waste Streams

Material	Annual Volume (tons)	Final Disposition
Coal Combustion Products		
Bottom Ash	52,226	Ashpond A
Fly Ash	208,906	Ashpond A
Coal	400	Ashpond A & B
Limestone Ballmill Waste	20	Off-site landfill
Waste Gypsum	367,344	Structural Fill
Cenospheres	124.8	Resold
Material	**Annual Volume (MMG)**	**Final Disposal**
Wastewater streams in Ashponds		
Potable Water blowdown	157.7	Ashpond B – Outfall 103
871 Demineralizer blowdown	28.4	Ashpond A – Outfall 103
207E Demineralizer blowdown	10.5	Ashpond B – Outfall 103
Once Through Bearing Cooler/Boiler Blowdown (potable water)	700.8	Ashpond B – Outfall 103

*None of the waste stream material in the above table is recycled. Only bottom ash, fly ash, gypsum, and cenospheres are destined for beneficial reuse.

3.0 Daily Activities

3.1 Sunday, August 9th – Project Kickoff Meeting

Sunday August 9, 2009 was a travel day for the inspection team. The SAIC team of Jerry Whittum and Brandon Peebles met with Dan Chachakis, EPA Region 5, on Sunday evening. A brief meeting was held to discuss an agenda for the inspections and sampling during the week. Jim Rawe of SAIC joined the team at the site on Monday August 10, 2009.

3.2 Monday, August 10th – Process Overview/Document Review/Site Walkthrough

On Monday morning, August 10th, the EPA/SAIC inspection team arrived at the Alcoa plant at 8:05 AM. The inspection team checked in at the visitor's gate, watched a safety video, and obtained safety equipment required by Alcoa. Dennis Wene, Senior Staff Environmental Engineer, was the point of contact for the inspection team. Mr. Wene, along with Scott Darling (Environmental Health and Safety Manager), and Tony Schoedel (Manager, Environmental Center of Excellence, Corporate) met the inspection team in a conference room located in the administrative building. Introductions were then made between the EPA/SAIC inspection team and the Alcoa representatives. Mr. Chachakis stated the intention of the inspection, presented his credentials, and began the opening conference. After the opening conference, the question and answer session about the entire Alcoa Warrick Operations facility began. Mr. Wene, Mr. Darling, and Mr. Schoedel proceeded to provide the inspection team with detailed background and process information on both the aluminum process plant and the coal processing plant for the rest of the morning. After a short lunch break, the inspection spent most of the afternoon reviewing regulatory documents and data. At 3:15 PM, Mr. Wene suggested the inspection team take a "windshield" walkthrough of the facility. The site walkthrough began by visiting the coal pile runoff area, the barge unloading area, Ash Pond A, Ash Pond B, Ash Pond C, Ash Pond D, Outfall 003, and Outfall 103. After a brief discussion at each of the areas, the walkthrough continued on to Outfall 303, the limestone and gypsum area, and Units 1-4. The site walkthrough concluded at 4:00 PM. After a brief discussion with the Alcoa representatives about the agenda for the rest of the week, the EPA/SAIC inspection team departed the facility.

3.3 Tuesday, August 11th – Site Inspection and Document Review

On Tuesday morning, August 11th, the EPA/SAIC inspection team arrived on-site at 8:00 AM. The Alcoa representatives provided three separate walkthroughs of the plant to meet the needs of individual inspectors. Mr. Wene took Mr. Rawe and Mr. Whittum to chemical and oil storage areas related to EPCRA and SPCC. Mr. Darling took Mr. Chachakis to RCRA waste generation and storage areas. Pedro Stiassni (Environmental Engineer) took Mr. Peebles to the stormwater outfalls. Once the site inspection for their individual regulatory area was completed, each inspector reconvened in the administrative building and continued to review regulatory documents and data. The site inspections and document review lasted for most of the day. During the afternoon, the inspection team began discussing possible sampling locations with the Alcoa representatives. Mr. Wene took Mr. Peebles out to the sample locations that were discussed in order to determine accessibility at each location. Shortly afterwards, the EPA/SAIC inspection team departed the facility.

3.4 Wednesday, August 12th - Sampling

On Wednesday morning, August 12th, the EPA/SAIC inspection team arrived on-site at 8:00 AM. The entire day was dedicated to collecting water and soil samples at the Alcoa facility. The inspection team was escorted to the alumina unloading area at approximately 8:55 AM. The first sample was collected at 9:06 AM, and the last sample for the day was collected at 5:30 PM. Further sampling details (locations, methods, times, etc.) can be found in Section 4.0. The EPA/SAIC inspection team departed the facility at 6:00 PM and proceeded to continue to prepare all of the coolers for proper shipment.

3.5 Thursday, August 13th – Document Review and Closeout Meeting

The EPA/SAIC inspection team arrived Thursday morning, August 13th, at 8:00 AM. The first half of the day was dedicated to finishing the regulatory document and data review. After a short lunch break, the EPA/SAIC inspection team and the Alcoa representatives began the closing conference. After the conclusion of the closing conference, some of the inspection team finished the last portions of their regulatory document review. The EPA/SAIC inspection team departed the facility at 3:30 PM.

4.0 Sampling Activities and Field Observations

4.1 Background on Bevill Wastes

EPA is investigating the waste disposal practices at coal-fired power plants as they relate to the Bevill exclusion. The Bevill exclusion exempts from hazardous waste regulation independently managed large-volume wastes generated at coal-fired electric utilities that use coal as the primary fuel feed in their operations. These large-volume wastes are:

- fly ash waste;
- bottom ash waste;
- slag waste; and
- flue gas emission control waste.

Other wastes from the combustion of coal or other fossil fuels are also Bevill exempt from regulation under RCRA subtitle C. These include:

- coal combustion wastes generated at non-utilities;
- coal combustion waste from fluidized bed combustion technology;
- petroleum coke combustion wastes;
- waste from the combustion of mixtures of coal and other fuels;
- wastes from the combustion of oil; and
- wastes from the combustion of natural gas.

Finally, large-volume coal combustion wastes generated at electric utilities and independent power producing facilities that are co-managed with other coal combustion wastes are exempted. Common low-volume wastes fall into two categories: uniquely-associated and not-uniquely associated wastes. Common uniquely associated wastes are:

- coal pile runoff;
- coal mill rejects such as pyrite and off-specification coal;
- wastes from the cleaning of the exterior surfaces of heat exchangers;
- floor and yard drains including wash water and stormwater;
- wastewater treatment sludges; and
- boiler fireside (inside of boiler tubes) chemical cleaning wastes.

If these low-volume, uniquely associated wastes are not co-managed with large-volume fossil fuel combustion wastes may be non-exempt hazardous wastes if they are listed or exhibit a hazardous characteristic.

Low-volume wastes that typically are non-uniquely associated wastes and are not exempted are:

- boiler blowdown;
- cooling tower blowdown and sludge;
- intake and makeup water treatment and regeneration wastes;
- boiler waterside cleaning wastes;
- lab wastes;
- construction and demolition debris;
- general maintenance wastes; and
- spills and leaks of process materials that generate non-uniquely associated wastes.

In particular, EPA is interested in the disposal of non-uniquely associated wastes with Bevill excluded wastes and SAIC sampling focused on sources potentially meeting these parameters

4.2 Sample Collection Overview

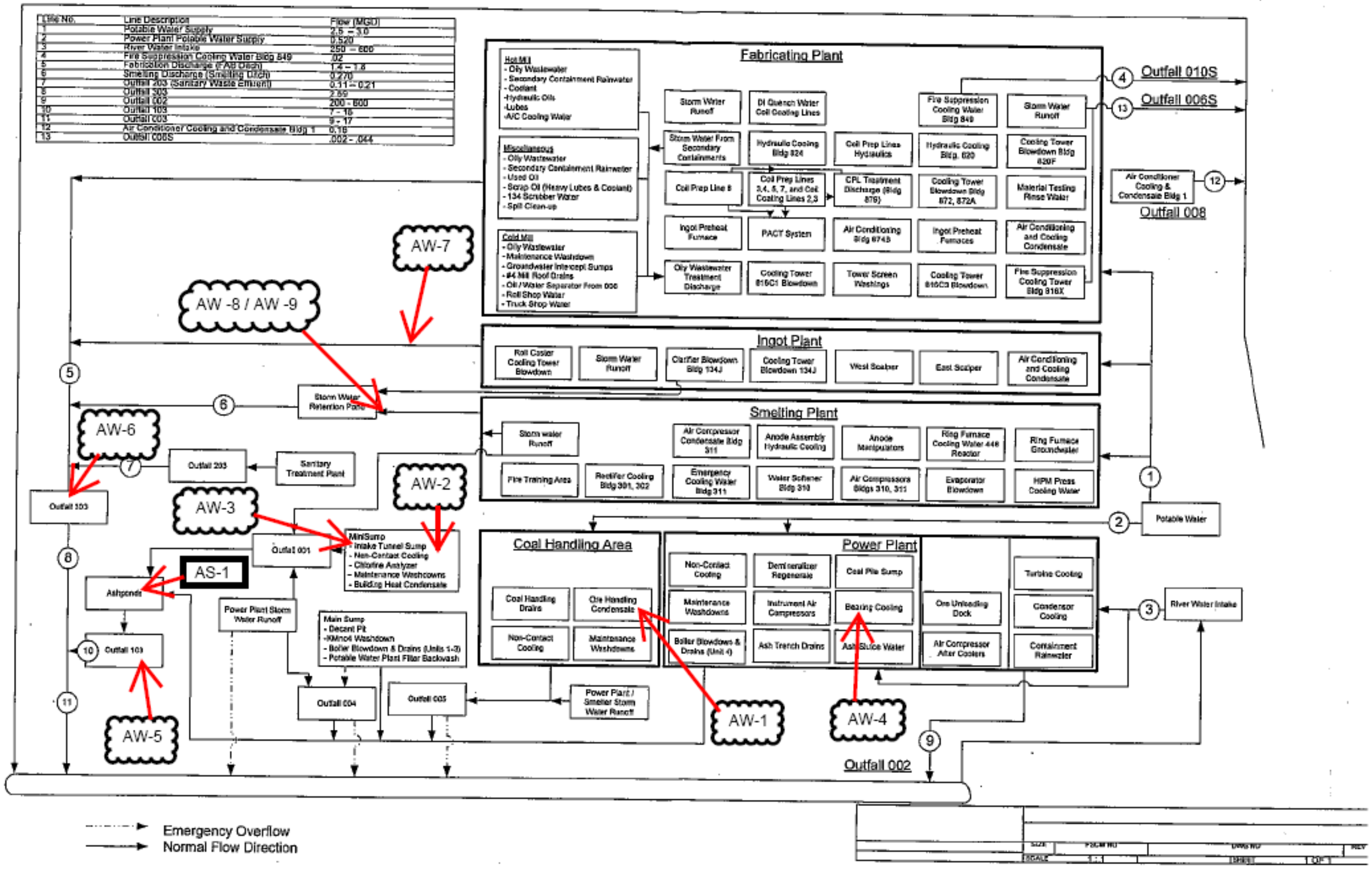
Samples were collected from the Alcoa facility on Wednesday, August 12th (Section 4.3). Table 4-1 describes type and location of sludge/sediment samples as well as the number and type of sample containers filled for each sample. Table 4-2 describes type and location of wastewater samples, and the number and type of samples containers filled for each sample. Figure 4-1 is a copy of a site water flow diagram with sample locations identified.

Table 4-1. Sludge/Sediment Sampling Locations and Number and Type of Sample Containers Used

Sample ID	Sample Location	Volatiles	Ignitability/ Reactivity/ pH	SVOC/ PCB	TCLP	Metals
		4-oz Wide Mouth Glass (1)	4-oz Wide Mouth Glass (1)	4-oz Wide Mouth Glass (1)	16-oz Wide Mouth Glass (2)	4-oz Wide Mouth Glass (1)
AS-1	Ash Pond (Bottom and Fly Ash Combined)	X	X	X	X	X
AS-2	Gypsum Storage Building	X	X	X	X	X

Table 4-2. Wastewater Sampling Locations and Number and Type of Containers Used

Sample ID	Sample Location	Volatiles	Ignitability	SVOC/ PCB	TCLP	Reactivity/ pH	Metals	TCLP	TSS
		40-ml VOA (2)	4-oz Glass (1)	1-L Amber (2)	1-L Amber (3)	300-ml Plastic (1)	300-ml Plastic w/ HNO3 (1)	40-ml VOA (2)	300-ml Plastic (1)
AW-1	Alumina Unload Area Condensate (Located Near the Ohio River Dock)	X	X	X	X	X	X	X	---
AW-2	380X Sump (KMnO4 and boiler blowdown)	X	X	X	X	X	X	X	---
AW-3	224X Sump (Boiler Blowdown)	X	X	X	X	X	X	X	---
AW-4	Unit 2 Bearing Cooling (one representative location of many available sites)	X	X	X	X	X	X	X	---
AW-5	Outfall 103	---	---	---	---	---	X	---	X
AW-6	Outfall 303	---	---	---	---	---	X	---	X
AW-7	Fabrication-Ingot Drainage Ditch	X	X	X	X	X	X	X	---
AW-8	Stormwater Pond Recycle Inlet	X	X	X	X	X	X	X	---
AW-8B	Stormwater Pond Recycle Inlet (Trip Blank)	X	---	---	---	---	---	---	---
AW-9	Stormwater Pond Recycle Inlet (Field Duplicate)	X	X	X	X	X	X	X	---



AS-2 is a soil sample taken from the gypsum pile inside the gypsum storage building. The building is not shown on the flow diagram, therefore, it is not labeled on the diagram.

Figure 4-1. Sample Locations

4.3 Wednesday, August 12th Sampling Activities

This section provides specific information on samples collected on Wednesday, August 12, 2009.

4.3.1 Sample AW-1

Table 4-3 presents information for wastewater sample AW-1. SAIC personnel collected samples for EPA/SAIC in accordance with the approved Quality Assurance Project Plan (QAPP).

Table 4-3. Sample AW-1

Location	Alumina Unload Area Condensate (Located Near the Ohio River Dock)
Date	August 12, 2009
Start Time	9:06 AM
Finish Time	9:30 AM
Coordinates	N37.91433, W087.33667
Sample Type	Grab
Matrix	Sludge/Sediment
Sample Collection Method	A 500-milliliter Teflon dipper with a short handle was placed under the condensate discharge pipe above the standing water level in a covered sump. The sump cover was partially raised (it could not easily be removed or fully raised, so access was restricted to a small dipper). The dipper was filled with wastewater which was then poured from the dipper directly into the sample containers. Samples were immediately placed on ice. SAIC collected split samples in Alcoa-provided bottles immediately after filling an EPA/SAIC sample. Alcoa samples were not placed on ice until the lunch break.

Figure 4-2 is a photograph of the AW-1 sampling location.

Figure 4-2. Sample AW-1: Alumina Unload Area Condensate

4.3.2 Sample AW-2

Table 4-4 presents information for wastewater sample AW-2. SAIC personnel collected samples for EPA/SAIC according to the QAPP.

Table 4-4. Sample AW-2

Location	380X Sump (KMnO4 and boiler blowdown)
Date	August 12, 2009
Start Time	10:04 AM
Finish Time	10:17 AM
Coordinates	N37.91368; W087.33257
Sample Type	Grab
Matrix	Wastewater
Sample Collection Method	A 2-gallon stainless steel bucket was lowered into the sump near the inlet (north side), filled with hot (55.3° C) wastewater, and extracted from the sump. The wastewater was then poured into the sample containers through a stainless steel funnel. EPA/SAIC and Alcoa samples were collected alternately; the bucket had to be refilled once for the last two samples (SVOCs). Samples were immediately packed into protective bubble wrap and placed on ice. Alcoa samples were not placed on ice until the lunch break.

Figure 4-3 is a photograph of the AW-2 sampling location.

Figure 4-3. 380X Sump (KMnO4 and boiler blowdown)

4.3.3 Sample AW-3

Table 4-5 presents information for wastewater sample AW-3. SAIC personnel collected samples for EPA/SAIC in accordance with the approved QAPP.

Table 4-5. Sample AW-3

Location	224X Sump (Boiler Blowdown)
Date	August 12, 2009
Start Time	11:03 AM
Finish Time	11:29 AM
Coordinates	N37.91397: W087.33264
Sample Type	Grab
Matrix	Wastewater
Sample Collection Method	A 1-liter Teflon dipper with a long Teflon handle was lowered into the sump, filled with hot wastewater, and extracted from the sump. The wastewater was then poured into the sample containers through a stainless steel funnel. EPA/SAIC and Alcoa samples were collected alternately; the bucket had to be refilled once for the last two samples (SVOCs). Samples were immediately packed into protective bubble wrap and placed on ice. Alcoa samples were not placed on ice until the lunch break.

Figure 4-4 is a photograph of the AW-3 sampling location.

Figure 4-4. Sample AW-3: 224X Sump (Boiler Blowdown)

4.3.4 Sample AW-4

Table 4-6 presents information for wastewater sample AW-4. SAIC personnel collected samples for EPA/SAIC in accordance with the approved QAPP.

Table 4-6. Sample AW-4

Location	Unit 2 Bearing Cooling (one representative location of many available sites)
Date	August 12, 2009
Start Time	11:43 AM
Finish Time	12:17 PM
Coordinates	No GPS reading – inside building (approximately 50 yards north of AW-3 location)
Sample Type	Grab
Matrix	Wastewater
Sample Collection Method	A 2-gallon stainless steel bucket was filled with once-thru contact bearing cooling water, and extracted from the sump. The wastewater was then poured into the sample containers through a stainless steel funnel. EPA/SAIC and Alcoa samples were collected alternately; the bucket had to be refilled twice. A complete suite of samples was collected. Samples were immediately packed into protective bubble wrap and placed on ice. Alcoa reported the samples were taken to the lab during lunch break (approximately 1225) and placed in a refrigerator; SAIC could not verify.

Figure 4-5 is a photograph of the AW-4 sampling location.

Figure 4-5. Sample AW-4: Unit 2 Bearing Cooling

4.3.5 Sample AW-5

Table 4-7 presents information for wastewater sample AW-5. SAIC personnel collected samples for EPA/SAIC in accordance with the approved QAPP.

Table 4-7. Sample AW-5

Location	Outfall 103
Date	August 12, 2009
Start Time	1:45 PM
Finish Time	2:00 PM
Coordinates	N37.91964; W087.34045
Sample Type	Grab
Matrix	Wastewater
Sample Collection Method	A 1-liter Teflon dipper with a long Teflon handle was placed into the wastewater stream at Pond AB (Flows from Pond B to Pond AA to Pond AB. Wastewater was then poured directly into the sample containers from the Teflon dipper. Samples were collected only for metals and total suspended solids (TSS). Samples were immediately placed on ice. Alcoa samples were not placed on ice until after the sampling was completed for the day at 1732.

Figure 4-6 is a photograph of the AW-5 sampling location.

Figure 4-6. Sample AW-5: Outfall 103

4.3.6 Sample AW-6

Table 4-8 presents information for wastewater sample AW-6. SAIC personnel collected samples for EPA/SAIC in accordance with the approved QAPP.

Table 4-8. Sample AW-6

Location	Outfall 303
Date	August 12, 20099
Start Time	2:08 PM
Finish Time	2:15 PM
Coordinates	N37.92268; W087.33669
Sample Type	Grab
Matrix	Wastewater
Sample Collection Method	A 1-liter Teflon dipper with a long Teflon handle was placed into the wastewater stream at Outfall 303. (Note: the sign says this is Outfall 003 but Alcoa confirms the location is actually Outfall 303). Wastewater was then poured directly into the sample containers from the Teflon dipper. Samples were collected only for metals and total suspended solids (TSS). Samples were immediately placed on ice. Alcoa samples were not placed on ice until after the sampling was completed for the day at 1732.

Figure 4-7 is a photograph of the AW-6 sampling location.

Figure 4.7. Sample AW-6: Outfall 303

4.3.7 Sample AW-7

Table 4-9 presents information for wastewater sample AW-7. SAIC personnel collected samples for EPA/SAIC in accordance with the approved QAPP.

Table 4-9. Sample AW-7

Location	Fabrication-Ingot Discharge Ditch
Date	August 12, 2009
Start Time	2:58 PM
Finish Time	3:22 PM
Coordinates	N37.52296; W087.33522
Sample Type	Grab
Matrix	Wastewater
Sample Collection Method	A 1-liter Teflon dipper with a long Teflon handle was placed into the wastewater stream at the combined Fabrication-Ingot Discharge Ditch on the east side of the outer access road. This location is ahead of where the wastewater flows through a closed ditch under the road and into the Outfall 303 collection area. Wastewater was then poured directly into small sample containers; a stainless steel funnel was used to fill the 1-liter amber bottles and 500-ml plastic bottles. Samples were immediately placed on ice. Alcoa samples were not placed on ice until after the sampling was completed for the day at 1732.

Figure 4-8 is a photograph of the AW-7 sampling location.

Figure 4-8. Sample AW-7: Fabrication-Ingot Discharge Ditch

4.3.8 Sample AW-8

Table 4-10 presents information for wastewater sample AW-8. SAIC personnel collected samples for EPA/SAIC in accordance with the approved QAPP. SAIC also collected two trip blanks according to the QAPP; these samples were analyzed for volatiles. These two containers were labeled as samples AW-8B and were filled at the Stormwater Pond Recycle Inlet using deionized water obtained from Microbac Laboratories, Inc.

Table 4-10. Sample AW-8

Location	Stormwater Pond Recycle Inlet
Date	August 12, 2009
Start Time	3:58 PM
Finish Time	4:15 PM
Coordinates	N37.92115; W087.33465
Sample Type	Grab
Matrix	Sediment
Sample Collection Method	A 1-liter Teflon dipper with a long Teflon handle was then placed into the wastewater stream from a 12-inch diameter (approximate) pipe. Wastewater was poured from the dipper directly into the small sample bottles. Larger bottles were filled directly at the wastewater discharge point. All samples were immediately placed on ice. Alcoa samples were not placed on ice until after the sampling was completed for the day at 1732.

Figure 4-9 is a photograph of the AW-8 sampling location.

Figure 4-9. Sample AW-8: Stormwater Pond Recycle Inlet. The duplicate sample (AW-9) along with the trip blanks (AW-8B) were also collected at this location.

4.3.9 Sample AW-9

Table 4-11 presents information for sample AW-9. SAIC personnel collected samples for EPA/SAIC in accordance with the approved QAPP.

Table 4-11. Sample AW-9

Location	Stormwater Pond Recycle Inlet – Field Duplicate
Date	August 12, 2009
Start Time	4:17 PM
Finish Time	4:30 PM
Coordinates	N37.92115; W087.33465
Sample Type	Grab
Matrix	Wastewater
Sample Collection Method	A 1-liter Teflon dipper with a long Teflon handle was then placed into the wastewater stream from a 12-inch diameter (approximate) pipe. Wastewater was poured from the dipper directly into the small sample bottles. Larger bottles were filled directly at the wastewater discharge point. All samples were immediately placed on ice. Alcoa samples were not placed on ice until after the sampling was completed for the day at 1732.

Figure 4-10 is a photograph of the AW-9 sampling location.

Figure 4-10. Sample AW-9: Stormwater Pond Recycle Inlet. The duplicate sample (AW-9) along with the trip blanks (AW-8B) were also collected at this location.

4.3.10 Sample AS-1

Table 4-12 presents information for sediment/solid sample AS-1. SAIC personnel collected samples for EPA/SAIC in accordance with the approved QAPP.

Table 4-12. Sample AS-1

Location	Ash Pond (Bottom and Fly Ash Combined)
Date	August 12, 2009
Start Time	4:50 PM
Finish Time	5:10 PM
Sample Type	Grab
Matrix	Ash (Solid)
Sample Collection Method	A grab sample was collected at the edge of a trench in the ash pond by scooping ash into a stainless steel bowl where the ash was mixed until the color and size of the particles appeared uniform. Ash was placed into sample containers using stainless steel trowels. All samples were immediately placed on ice. Alcoa samples were not placed on ice until after the sampling was completed for the day at 1732.

Figure 4-11 is a photograph of the AS-1 sampling location

Figure 4-11. Sample AS-1: Ash Pond

4.3.11 Sample AS-2

Table 4-13 presents information for sample AS-2. SAIC personnel collected samples for EPA/SAIC in accordance with the approved QAPP.

Table 4-13. Sample AS-2

Location	Gypsum Storage Building
Date	August 12, 2009
Start Time	5:20 PM
Finish Time	5:30 PM
Sample Type	Grab
Matrix	Gypsum (Solid)
Sample Collection Method	A grab sample was collected from the gypsum pile by scooping gypsum into a stainless steel bowl. The gypsum was thoroughly mixed for one minute until the sample appeared uniform. Gypsum was placed into sample containers using stainless steel trowels. All samples were immediately placed on ice. Alcoa samples were not placed on ice until after the sampling was completed for the day at 1732.

Figure 4-12 is a photograph of the AS-2 sampling location.

Figure 4-12. Sample AS-2: Gypsum

4.3.12 Sample Not Collected: Main Sump

SAIC investigated sampling the Main Sump but could not access the sump because it is a confined space and water is at least 20 feet below the surface. Samples of the main contributors to the Main Sump, $KMnO_4$ wastewater and boiler blowdown were collected at sump 224X instead (see sample AW-3).

4.3.13 Sample Not Collected: Mini-Sump and Chlorine Analyzer

SAIC investigated sampling the Mini-Sump (chlorine analyzer and maintenance wash down) but could not access the sump because it was a confined space and the water was approximately 30 feet below the ground surface. SAIC then investigated sampling the chlorine analyzer but, upon inspection and discussion with Alcoa, decided the stream was very clean water with residual chlorine (see Figure 4-13). Therefore, sampling at the Mini-Sump was cancelled and alternate samples were collected at Unit 2 Bearing Cooling water, one of the main contributors to the Mini-Sump (see sample AW-4).

Figure 4-13. Chlorine Analyzer Drain – Not Sampled

4.3.14 Sample Not Collected: Ingot Area Discharge Ditch

SAIC investigated sampling the Ingot Area Discharge Ditch looking for stormwater runoff from process areas. The ditch joins a drainage ditch from Fabrication and flows toward Outfall 303. A sample could not be safely collected solely in the Ingot Area ditch because the sidewalls were steep and covered with honeysuckle vine (see Figure 4-14). An attempt to carefully climb down the side of the bank revealed deep ruts that were hidden by honeysuckle. SAIC decided it was unsafe to collect this sample and opted to collect a sample below the point where the Ingot and Fabrication Area Drainage Ditches joined (see sample AW-7) before flowing under the access road toward Outfall 303 to the west where the Smelter pipe also contributes to Outfall 303.

Figure 4-14. Ingot Area Discharge Ditch – Not Sampled

4.4 Sample Packaging

After initial sample collection, all of the sample containers were immediately placed into a cooler containing bagged ice until they could be packaged for shipment.

Sample packaging for shipment consisted of lining a cooler with a clean plastic trash bag and placing two 2-gallon Ziploc bags, approximately one-half full of ice on the bottom of the cooler inside the trash bag. A layer of large sample bottles were placed on top of the ice. Another layer of ice (in Ziploc bags) was added on top. The remaining sample containers were placed on top of the previous layer of ice. Finally, a third layer of ice (in Ziploc bags) was added on top and the trash bag was sealed and secured by tying a knot and/or taping the bag shut. The chain of custody was properly completed for each sample location/cooler, inserted into a 2-gallon Ziploc bag which was sealed, and placed on top of the sealed trash bag inside the cooler. Copies of the chain of custody forms are located in Appendix B. The cooler was then taped shut with strapping tape. The custody seals were signed, dated, and placed on each cooler covered with a small piece of tape. Finally, the shipping air bill was properly completed and taped onto each cooler. This procedure completed the shipment process for each sample and its respective cooler.

During the entire sampling process (collection, packaging, etc.), SAIC followed the proper procedures outlined in the Quality Assurance Project Plan.

5.0 Analytical Results

Samples (nine aqueous and two solids) were collected at the Alcoa facility on August 12, 2009. Samples were analyzed for volatile organic compounds (VOCs) by method SW8260, semivolatile organic compounds (SVOCs) by method SW8270, polychlorinated biphenyls (PCBs) by SW8082, herbicides by SW8151, metals by methods SW6010 and mercury by SW7470 for aqueous samples and SW7471 for solids. Toxicity Characteristic Leaching Procedure (TCLP) extracts were prepared as per SW846 1311 followed by analysis by the above methods, as appropriate, along with pesticides by SW8081 and herbicides by SW8151. TCLP VOCs were evaluated based on the results of the total analyses adjusted for the dilution of the extraction fluid and results were all non-detect; therefore a separate ZHE extraction was not required (as per SW846 1311, 1.2).

The complete tables of the analytical lab results are located in Appendix C. The raw lab data reports from the laboratory can be found in Appendix D in an electronic format. Sections 5.1 and 5.2 below present analytical results when parameters were identified over their method detection limit.

5.1 TCLP Analytical Results

Table 5-1 presents a summary for selected TCLP analyses for aqueous and sediment (solid) samples collected at the Alcoa facility for only those parameters detected over their method detection limits. None of the sample results exceeds the corresponding TCLP regulatory result. The only metal found above detection limits was barium which has a TCLP limit of 100 mg/l. All other parameters not summarized in Table 5-1, which were analyzed, had results below their detection limits.

Table 5-1. Selected TCLP Analytical Results: Alcoa Aqueous and Sediment (Solid) Samples

Field Sample ID	TCLP	AW-1	AW-2	AW-3	AW-4	AW-7	AW-8	AW-9	AS-1	AS-2
Matrix	Regulatory	Water	Water	Water	Water	Water	Water	Water	Solid	Solid
Sample Date	Criteria	8/12/09	8/12/09	8/12/09	8/12/09	8/12/09	8/12/09	8/12/09	8/12/09	8/12/09
Units	mg/l	mg/l	mg/l	mg/l	mg/kg	mg/l	mg/l	mg/l	mg/l	mg/l
TCLP Metals										
Barium	100	0.2	ND	ND	ND	ND	0.22	0.2	ND	ND
*ND - Not Detected										

5.2 Total Analytical Results

Table 5-2 presents a summary of results for selected analytical results for aqueous and sediment (solid) samples collected at the Alcoa facility for only those parameters detected over their method detection limits. All other parameters not summarized in Table 5-2, which were analyzed, had results below their detection limits.

Table 5-2. Summary of Selected Analytical Results: Alcoa Aqueous and Sediment (Solid) Samples

Field Sample ID	AW-1	AW-2	AW-3	AW-4	AW-5	AW-6	AW-7	AW-8	AW-8B	AW-9	AS-1	AS-2
Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Solid	Solid
Sample Date	8/12/09	8/12/09	8/12/09	8/12/09	8/12/09	8/12/09	8/12/09	8/12/09	8/12/09	8/12/09	8/12/09	8/12/09
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/kg	ug/kg
VOCs - Total												
Acetone	ND	ND	ND	ND	NT	NT	1700	ND	ND	ND	ND	ND
SVOCs - Total												
Phenol	ND	ND	ND	ND	NT	NT	810	ND	NT	ND	ND	ND
Metals - Total	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	*NT*	mg/l	mg/kg	mg/kg
Aluminum	0.89	ND	0.28	1.1	0.22	0.57	0.53	0.1		0.097	14000	400
Antimony	ND	ND	ND	ND	ND	ND	ND	ND		ND	2.8	ND
Arsenic	ND	ND	ND	ND	0.0057	ND	ND	ND		ND	41	2.9
Barium	0.086	0.11	0.014	0.042	0.061	0.057	0.055	0.084		0.083	180	6.3
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND		ND	2.8	ND
Cadmium	0.00078	0.00085	ND	0.00064	0.0031	0.0034	0.0037	0.00094		0.00095	1.8	1.4
Calcium	68	74	13	36	140	69	60	71		70	24000	170000
Chromium	ND	ND	ND	0.0017	0.0017	ND	ND	ND		ND	26	2.3
Copper	0.0054	ND	0.0053	0.0027	0.0015	0.0046	0.0035	0.0061		0.0068	25	ND
Iron	ND	0.33	0.29	1.5	0.11	0.11	0.21	ND		ND	44000	930
Magnesium	14	14	3.2	9.6	92	16	17	15		15	1700	ND
Manganese	ND	0.66	0.021	0.071	0.86	0.092	0.053	0.0073		0.0071	180	ND
Nickel	ND	ND	ND	ND	0.015	ND	ND	ND		ND	16	ND
Potassium	5	5.3	1.1	3.3	8.1	7.2	7.1	5		4.9	1900	150
Sodium	29	30	7.1	16	61	330	390	41		41	450	ND
Vanadium	ND	ND	0.00087	0.0021	0.01	ND	ND	ND		ND	58	ND
Zinc	ND	ND	ND	ND	ND	0.054	0.1	ND		ND	78	5.9
Mercury	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	0.21
Metals - Dissolved	NT	NT	NT	NT			NT	NT		NT	NT	NT
Aluminum					ND	0.093						
Arsenic					0.0056	ND						
Barium					0.047	0.045						
Calcium					130	64						
Magnesium					84	15						
Potassium					7.5	6.5						
Sodium					56	320						
VaNTdium					0.0055	ND						
pH	7.5	7.8	7.9	7.6	NT	NT	8.0	7.3	NT	8.1	8.3	7.3
% Solids	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	82.13	76.58
Ignitability	>200 °F	>200 °F	>200 °F	>200 °F	NT	NT	>200 °F	>200 °F	NT	>200 °F	>200 °F	>200 °F
Reactive Cyanide	ND	ND	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND
Reactive Sulfide	ND	ND	ND	ND	NT	NT	ND	ND	NT	30	52	13
Total CN	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
TSS	NT	NT	NT	NT	60	20	NT	NT	NT	NT	NT	NT
*ND - Not Detected												
*NT - Not Tested												

5.3 Reliability of Analytical Results

Results were reviewed to determine the reliability of the data and evaluate any limitations on their use in support of project objectives. The data quality indicators were assessed including precision and accuracy. Sample quality control included holding times, surrogate recovery and internal standard results. Batch QC analyses included tuning and calibration, method blanks, laboratory control samples and matrix spikes. The results for each parameter are discussed below.

5.3.1 Sample Receipt

Samples were received at the lab with one noted exception. Sample vials for AW-4 were received with headspace and therefore the VOC and TCLP VOC results are qualified as estimated.

5.3.2 VOC Analytical Review

All samples for total VOCs were analyzed within method specified holding times. Soils were extracted into methanol and analyzed as mid-level protocols with elevated detection limits (approximately 500 ug/kg). Prior to the analysis of any samples, the tune performance compound BFB was analyzed and an initial calibration (ICAL) was performed. Outlier compounds were evaluated for linearity via linear or non-linear regression. Every 12 hours that samples were analyzed, the instrument tune and calibration was verified. Continuing calibration verification (CCV) standards were analyzed as required and generally met criteria. The response factor for several compounds in the CCV exceeded the % difference (%D) criteria relative to the ICAL response factor; the response was greater in the CCV and since the compounds were not detected there was no impact on data quality.

Surrogate and internal standards were added to the samples prior to analysis. Area counts and retention times for the internal standards met criteria and surrogate recoveries fell within laboratory control limits.

Method blanks were generally free of target compound contamination; the aqueous method blank contained low level methylene chloride contamination. All sample results were ND for methylene chloride. Accuracy was assessed through the analysis of laboratory control samples (LCSs), which were analyzed with each analytical batch and matrix spikes or matrix spike duplicates (MS/MSD). A few compounds had recoveries that exceeded control limits; these compounds were not detected in the samples.

The analysis of the field duplicate pair, AW-8 and AW-9, resulted in all VOCs as non-detect for both samples.

5.3.3 SVOC Analytical Review

All extraction and analysis holding times were met for total SVOCs (aqueous and solid samples). The specified holding time for TCLP extracts is 7 days from the TCLP leachate extraction to the preparative extraction of the leachate for SVOCs. All TCLP leachate samples exceeded this holding time by two to six days; the data are qualified as estimated.

Prior to the analysis of any samples, the tune performance compound DFTPP was analyzed and an initial calibration was performed. Outlier calibration compounds were evaluated for linearity via linear or non-linear regression. Every 12 hours that samples were analyzed, the instrument tune and calibration was verified. The continuing calibration associated with the analysis of soil samples had outlier results when the concentrations of 3-nitroaniline and carbazole were calculated and benzidine had a very low response factor (RF). These compounds required qualification in the samples as estimated (note that 3-nitroaniline and carbazole are discussed further with spike results below). The continuing calibration associated with the aqueous total

SVOC analyses resulted in outlier results for several compounds. Benzidine, 4-chloroaniline and 4-nitrophenol all had RFs which differed from the initial calibration RF by more than 40% and these results were therefore qualified as estimated. All method blanks were free of target compound contamination. Sample AW-7 was analyzed at a dilution at bring the concentration of phenol within the calibration range of the standards.

Surrogates were added to samples prior to extraction and internal standards were added to the extracts prior to analysis. Internal standard area counts and retention time criteria were met for all samples except the total SVOC analysis of AW-4; data for this sample were qualified as estimated. Surrogate recoveries fell outside laboratory control limits for two analyses. The total and TCLP SVOC analysis of sample AW-2 resulted in recoveries that were less than 10%; since both analyses on the same sample confirmed that there is a matrix effect for this sample, the results are qualified as UJ. However, caution should be used in applying these results.

Laboratory control samples (LCS) and matrix spike duplicates were analyzed with each batch of samples to assess accuracy and precision. The soil matrix spike associated with these samples was from performed on sample AS-1. The results for four compounds in both the LCS and MS/MSD resulted in no recovery: 2-methylphenol, 3-/4-methylphenol (the compounds co-eleute), 3-nitroaniline and carbazole. The data for these compounds are considered unusable in the analysis of the soil samples. The soil spike recovery also had recoveries below the lower control limit for 1,2,4-trichlorobenzene and 1,4-dichlorobenzene; the results for these compounds in the soil samples are qualified as estimated to reflect that the detection limits may be biased low. The LCS and matrix spike associated with the TCLP analyses had low pyridine recovery and results for this compound are considered estimated. The aqueous laboratory control sample and duplicate (LCS/LCSD) associated with total SVOC analyses had a few compounds that had recoveries that exceeded the upper control limits; these compounds were not detected in the samples.

The analysis of the field duplicate pair, AW-8 and AW-9, resulted in all SVOCs as non-detect for both samples.

5.3.4 Pesticide Analytical Review

Samples for TCLP pesticides were extracted outside of the method specified holding time for the preparative extraction of TCLP leachates. The hold times were exceeded by one to five days; therefore all TCLP pesticides data is considered estimated.

Calibrations were performed as per method requirements. Two samples, the TCLP leachates for AW-4 and AS-1, were analyzed past the 12 hour calibration period by less than one hour; these data were already qualified as estimated due to missed holding times. Method blanks were free of contamination above the reporting limits. Blank spikes and matrix spike duplicates were analyzed with each batch of samples. A few compound recoveries exceeded control limits in LCS or MS/MSD, however, the compounds were not detected in the samples, and recovery values were generally within 10% of the control limits; therefore there was no impact on overall data quality.

Surrogates were added to the samples prior to extraction. All surrogate recoveries met laboratory control limits.

The analysis of the field duplicate pair, AW-8 and AW-9, resulted in all TCLP pesticide compounds as non-detect for both samples.

5.3.5 Herbicide Analytical Review

Samples for TCLP herbicides were extracted within method specified holding times. Prior to sample analysis, calibrations were performed per the method requirements.

Calibrations were performed in accordance with method requirements. Method blanks were free of contamination. Laboratory control samples and matrix spike duplicates were analyzed with each batch of samples.

Surrogates were added to each sample prior to extraction. Sample AS-1 had surrogate recoveries less than 10% and these data are considered unusable and have been qualified as such.

The analysis of the field duplicate pair, AW-8 and AW-9, resulted in all TCLP herbicide compounds as non-detect for both samples.

5.3.6 PCB Analytical Review

Samples for PCB analysis were extracted and analyzed within hold time. Prior to sample analysis, calibrations were performed per the method requirements.

Surrogates were added to samples prior to extraction and recoveries met specified control limits.

Method blanks were free of contamination above the reporting limits. Laboratory control samples (LCS) and matrix spike duplicates were analyzed with each batch of samples and recoveries were within control limits.

The analysis of the field duplicate pair, AW-8 and AW-9, resulted in all PCBs as non-detect for both samples.

5.3.7 Metals Analytical Review

Samples were analyzed for Total TAL metals and TCLP metals. All samples were analyzed within method specified holding times.

Calibration was performed as per method requirements and included initial calibration verification standards, continuing calibration verification standards, initial and continuing calibration blanks. Continuing calibration check standards (CCCs) exceeded criteria for one or more standard for mercury and potassium; positive results are considered estimated values. Calibration blanks met method criteria. A method blank associated with the TCLP analyses contained low level concentrations above the reporting limit of barium, sample results for AW-1, AW-8 and AW-9 (which were less than ten times the blank level and were therefore potentially impacted by the blank contamination) were qualified as estimated. The impact of the blank contamination is the probable reason the barium concentration in the TCLP leachates for these three samples is higher than the total results.

Matrix spike duplicates (MS/MSDs) were analyzed with each batch of samples as were laboratory control samples and duplicate samples. Some outlier spike recoveries were due to the high native sample concentration relative to the spiking level which precluded an assessment of accuracy for these metals. Duplicate samples met criteria for precision with RPD values within control limits for samples with results above the RDL.

Field duplicate results for total and TCLP metals in AW-8 and AW-9 were in agreement with the RPD between the samples less than 11% for metals that were detected at concentrations above the reporting detection limit.

5.3.8 Wet Chemistry Review

Ignitability: All samples results were reported as >200°F. A laboratory control sample was reported with results within laboratory limits. The sample and field duplicate agreed.

Reactive Cyanide: The laboratory control sample and matrix spike associated with these samples were outside laboratory established control limits, data are considered to be estimated values. The sample and field duplicate were both reported as ND.

Reactive Sulfide: All samples were run outside of holding time; therefore all results are qualified as estimated. The laboratory control sample and matrix spike associated with these samples were outside laboratory established control limits, data are considered to be estimated values. The AW-8 sample result for reactive sulfide was ND (less than 10 mg/l) but the field duplicate AW-9 was reported as 30 mg/l; this further indicates that the results for this parameter should be considered estimated data.

pH: The pH of the aqueous samples was determined outside of holding time; therefore all results are qualified as estimated. The pH of AW-8 was reported as 7.3 and AW-9 pH was 8.1; this 0.8 pH unit difference represents a 10% RPD.

5.4 Summary of Data Usability and Limitations

Based on the review of analytical data, as detailed above, some sample results have been identified as having QC non-conformance such that the data cannot be used without qualification. Several results were considered unusable; the results for these samples were qualified with a Data Validation Qualifier (DVQ) of R. Other data that were considered to be estimated results were qualified with a DVQ of J or UJ, and have been so indicated in the attached Alcoa Data Review Tables.

All other sample data can be used without additional limitation or qualification for the evaluation of project objectives.

<u>6.0 Regulatory Review</u>

6.1 RCRA

Dan Chachakis, EPA Region 5 was the technical lead on the RCRA inspection. The SAIC team provided technical support. The results of the regulatory review will be documented by Mr. Chachakis.

SAIC noted one significant issue related to RCRA during the inspection. The Alcoa manufacturing plant and power plant are owned by the same company and are collocated, yet the plants have separate hazardous waste generator identification numbers. The manufacturing plant is a large quantity generator (LQG) and the power plant is a small quantity generator (SQG). The power plant is managed to SQG standards (e.g., 180-day accumulation), not LQG standards.

6.2 EPCRA

6.2.1 Tier I and II

Subpart B Community Right-To-Know reporting requirements apply to any facility that is required to prepare or have available a material safety data sheet (MSDS) for a hazardous chemical under the Occupational Safety and Health Act of 1970 and regulations promulgated under that Act. The minimum threshold for reporting for extremely hazardous substances is 500 pounds (or 227 kgs--approximately 55 gallons) or the TPQ, whichever is lower. The minimum threshold for reporting for all other hazardous chemicals is 10,000 pounds (or 4,540 kgs.) (40 CFR §370.20)

40 CFR §370.25 requires the owner or operator of a facility subject to Subpart B to submit an inventory form to the State Emergency Response Commission (SERC), the Local Emergency Planning Committee (LEPC), and the fire department with jurisdiction over the facility. The inventory form containing Tier I information on hazardous chemicals present at the facility during the preceding calendar year above the threshold levels stated above must be submitted on or before March 1 of each year. The facility may submit a Tier II form in lieu of the Tier I information.

SAIC performed the following reviews for the calendar-year 2007 and 2008 Tier II forms for the Alcoa Power Plant.

1) Confirmed that the reports had been submitted by March 1 2009 to the SERC, LEPC and local emergency response agency.

2) Spot checked quantities of chemical stored in various locations throughout the two facilities to identify any chemicals currently stored in excess of the respective reportable quantity, recognizing that current quantities are not reportable until next March. The intent was to identify chemicals currently in excess of RQs and attempt to determine if RQs were exceeded in 2007 and 2008. Typically the assessor would a) compare inventory documents for previous years to the Tier II forms to confirm all chemicals above RQ were reported and b) compare current inventory documents to current physical inventories to confirm the accuracy of the inventory system. However, Alcoa could not produce current or past document inventories for chemicals stored. The Environmental Manager stated that chemical inventories are not maintained; chemicals are ordered on an as needed basis. Additionally, he stated that chemicals stored in tanks are reported at maximum tank capacity or working volume. Limited time prevented a comprehensive review of purchasing and usage records (it is not clear that usage is documented) in lieu of chemical inventory records. Therefore, a comparison of current physical inventories to current document inventories and a cross-check of previous calendar year document inventories to Tier II reports could not be made. SAIC’s assessor did not observe any chemicals currently exceeding RQ values that had not been reported in previous Tier II reports.

3) To the extent that time constraints and the availability of Alcoa personnel and documentation permitted, storage capacity of tanks was confirmed and these were compared to Tier II reported quantities. Again, no discrepancies were noted.

6.2.2 Toxics Release Inventory (TRI)

The Environmental Manager at Alcoa confirms that the Alcoa Warrick Operations facility is a covered facility as defined in 40 CFR §372.22 and is required to implement Toxic Chemical

Release Reporting, commonly known as TRI, because it has more than 10 employees and is in a covered Standard Industrial Code (SIC).

40 CFR §372.25(b) requires TRI reporting by facilities that manufacture or process 25,000 pounds of a chemical for the year and "otherwise use" at a facility 10,000 pounds of the chemical for the applicable calendar year. Manufacture means to produce, prepare, import, or compound a toxic chemical. Manufacture also applies to a toxic chemical that is produced coincidentally during the manufacture, processing, use, or disposal of another chemical or mixture of chemicals, including a toxic chemical that is separated from that other chemical or mixture of chemicals as a byproduct, and a toxic chemical that remains in that other chemical or mixture of chemicals as an impurity. Otherwise use means any use of a toxic chemical, including a toxic chemical contained in a mixture or other trade name product or waste, that is not covered by the terms "manufacture" or "process." Otherwise use of a toxic chemical does not include disposal, stabilization (without subsequent distribution in commerce), or treatment for destruction. Process means the preparation of a toxic chemical, after its manufacture, for distribution in commerce:

SAIC reviewed the TRI calculation spreadsheets provided by Alcoa Warrick Operations for 2006, 2007, and 2008 and spot checked the accuracy of calculations. The review indicates that TRI data are properly calculated and chemicals are properly reported.

6.3 CWA

Figure 6-1 presents a schematic of water flow at the Alcoa Warrick Operations facility. Water is drawn form the Ohio River with a large quantity of it used in the power plant for once-through condenser cooling. Once-through cooling water, along with a little containment rainwater from the power plant is discharged to the Ohio River via Outfall 002. A small percentage of river water and potable water is used in the power plant area to sluice ash to the ash ponds. Also, some of the water from the potable water supply is used in the coal handling area. The coal handling area (coal handling drains, non-contact cooling, ore handling condensate) discharges to Outfall 005. Outfall 004 receives non-contact cooling water and storm water run-off from the power plant operations. Outfall 004, Outfall 005, and the main sump (decant pit, boiler blowdown for Units 1-3, and KMno4 washdown) all mix with the sluice ash water flow and discharge into the ashponds. The ashponds also receive discharges via Outfall 001. Outfall 001 receives storm water runoff from the smelting area, non-contact cooling water, and everything from the mini-sump. After a pH adjustment along the ash ponds, the ash pond water flows to Outfall 103.

Potable water from the plant supply is used in the Smelting Plant, the Ingot Plant, and the Fabricating Plant. The wastewater and stormwater from the Smelting Plant and the Ingot Plant partly flow to the Stormwater Retention Pond (Outfall 403). The water from the pond is mixed with limestone and used in the scrubber area. If no water is needed for the scrubber area, the lift station will divert the water from pumping into the pond and send it back to the water flow ditches discharging from each plant. The wastewater from the each of the three plants (Fabricating, Ingot, and Smelt) all discharge into Outfall 303. In addition, the sanitary treatment plant wastewater via Outfall 203 mixes with the process flow from the three plant wastewater streams before discharging via Outfall 303.

The streams from Outfall 303 and Outfall 103 eventually mix and discharge into the Ohio River through Outfall 003.

Line No.	Line Description	Flow (MGD)
1	Potable Water Supply	2.5 – 3.0
2	Power Plant Potable Water Supply	0.520
3	River Water Intake	250 – 600
4	Fire Suppression Cooling Water Bldg 849	.02
5	Fabrication Discharge (FAB Ditch)	1.4 – 1.8
6	Smelting Discharge (Smelting Ditch)	0.270
7	Outfall 203 (Sanitary Waste Effluent)	0.11 – 0.21
8	Outfall 303	2.59
9	Outfall 002	200 - 600
10	Outfall 103	7 - 15
11	Outfall 003	9 - 17
12	Air Conditioner Cooling and Condensate Bldg 1	0.16
13	Outfall 006S	.002 - .044

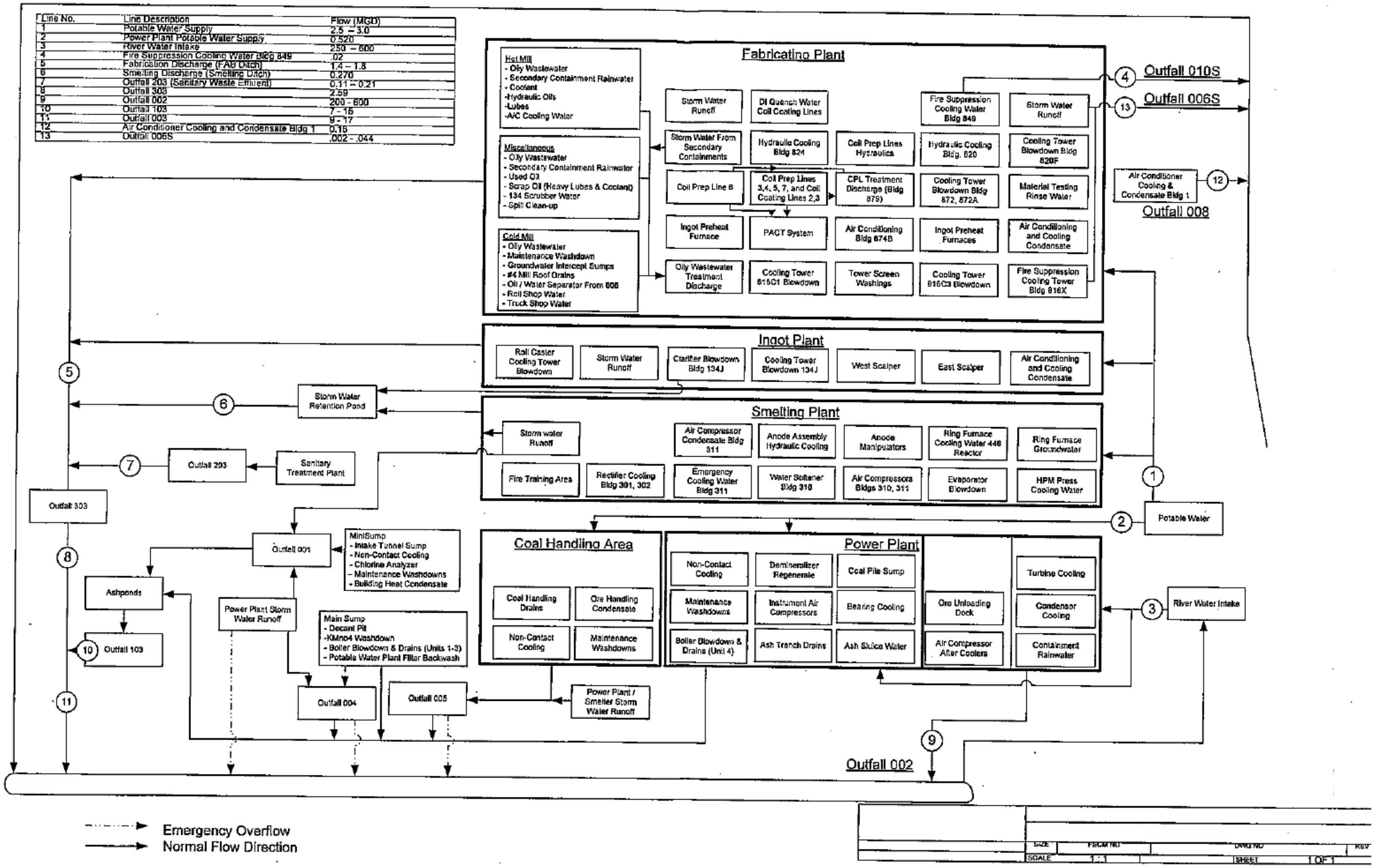


Figure 6-1. Schematic Water Flow Diagram

6.3.1 Spill Prevention, Control, and Countermeasure (SPCC) Plan and Facility Response Plan (FRP) Review

40 CFR §112, the Oil Pollution Prevention regulation, which is promulgated under the authority of §311 of the Clean Water Act (CWA), sets forth requirements for prevention of, preparedness for, and response to oil discharges at specific non-transportation-related facilities. To prevent oil from reaching navigable waters and adjoining shorelines and to contain discharges of oil, this regulation requires these facilities to develop and implement a Spill Prevention, Control, and Countermeasure (SPCC) Plan and establish procedures, methods, and equipment requirements. Any facility storing over 1,320 gallons of petroleum, oil, or lubricant (POL) in containers of 55 gallons or greater must prepare and implement an SPCC Plan (Plan). Alcoa Incorporated – Warrick Operations stores over 1,320 gallons of POL and is subject to 40 CFR §112 requirements.

Additionally, Subpart D of 40 CFR § 112 requires that an owner or operator of a non-transportation-related onshore facility that, because of location, could reasonably be expected to cause substantial harm to the environmental by discharging oil into or on the navigable waters or adjoining shoreline develop a facility response plan (FRP). Facilities required to prepare and implement a FRP include facilities that maintain total oil storage capacity greater than or equal to 1 million gallons and are located at a distance such that discharge from the facility could cause injury to fish and wildlife and sensitive environment. Alcoa Incorporated – Warrick Operations maintains a total oil storage capacity greater than 1 million gallons of POL and is located at a distance such that a discharge from the facility could cause injury to fish and wildlife and sensitive environment.

SAIC performed the following reviews for the Alcoa Incorporated – Warrick Operations.

1) SAIC confirmed that both an SPCC Plan and a FRP had been prepared for the facility and completed copies were maintained on site. The SPCC and FRP were combined into one plan. The entire Plan was last revised in December 2007.

2) SAIC verified that the Plan is reviewed and evaluated at least once every 5 years, certified by a registered professional engineer, and has management approval. The Plan includes a physical layout of the facility, flow drainage diagrams, numerous maps and other required information, but does not include a map of the petroleum, oil, and lubricant piping.

3) SAIC spot checked training records and reviewed the training presentation given to oil-handling and other pertinent personnel at the facility. No discrepancies were noted.

4) SAIC reviewed written procedures and spot checked records of inspections and tests relevant to the SPCC Plan. Documentation verified that inspections are conducted in a thorough and timely manner.

6.3.2 Storm Water Pollution Prevention Plan (SWPPP) and National Pollutant Discharge Elimination System (NPDES) Review

Indiana is an authorized state under the federal permitting program. The Indiana Department of Environmental Management (IDEM) administers the federal program as the National Pollutant Discharge Elimination System (NPDES) permit program, which is authorized under the Indiana

Administrative Code. The Indiana NPDES Permit Regulation sets forth the policies and procedures that are followed in the administration of the permit program as mandated by the Clean Water Act and EPA's Phase 1 (11/16/90) and Phase 2 (12/8/99) storm water regulations. IDEM issues NPDES permits that regulate storm water discharges from "Industrial Activities" as well as the discharge of industrial and sanitary waste.

Alcoa Warrick Operations (Alcoa) consists of an aluminum processing plant and a steam electric generating facility. Alcoa is considered a steam electric power generating station that discharges storm water associated with industrial activity through point sources. Therefore, the facility has a NPDES permit that includes storm water requirements. Furthermore, a Storm Water Pollution Prevention Plan (SWPPP) is required for the facility.

1) SAIC confirmed that a SWPPP had been prepared for the facility and a completed copy was maintained on site. The entire plan was last prepared on January 26, 2009.

2) SAIC verified that the SWPPP identifies the facility’s storm water pollution prevention team. The SWPPP contains required items and describes areas where industrial materials or activities are exposed to storm water and the potential pollutants resulting from a storm water discharge. No discrepancies were noted.

3) The most recent annual compliance evaluation was completed on September 26 – 30, 2009. The inspection report appears to be sufficient and signed. No discrepancies were noted.

4) SAIC spot checked training records and reviewed the 2007 and 2008 SWPPP computer-based training given to pertinent staff. The facility has developed SWPPP training, provides training to staff, and maintains training records. No discrepancies were noted.

5) SAIC noted the facility had four storm water concerns that did not comply with the SWPPP.

- SWPPP Section 3.3.2, Item 4 states: “Maintain grass or other suitable ground cover on all soil areas, with special attention given to road banks, berms, and drainage ways.” However, severe erosion was observed along the road to Outfall 303 such that the road was closed to vehicular traffic.

- SWPPP Section 3.3.4 states: “Properly dispose or repair leaking equipment and other potentially polluting materials.” However, leaking heavy equipment without a drip pan was observed outside the vehicle maintenance area.

- SWPPP Section 3.3.5 requires inspection of material storage and transfer loading and unloading and directs special attention of alumina and coal conveyance areas, since they pose a potential fugitive dust and storm water pollution concern. However, alumina dust was observed on vegetation and the soil in the unloading area and near storm water outfalls. Special attention is also to be directed at full or partially full drums of aqueous or hazardous materials that may pose a spill potential and states they shall not be stored outside of designated areas or outdoors unless they are secondarily contained as defined by the Release Potential Control and Countermeasure Plan and managed as a tank system. However, three drums, one mosquito magic cylinder, and eight used batteries were observed stored outside uncovered and uncontained in the vehicle maintenance area.

- SWPPP Section 3.3.6 states: "Drainage Area 001 material storage and transfer of spent anodes, … a spent anode usage operating procedure has been established to minimize stored spent anodes". However, uncovered spent anodes were observed near storm water inlets in Drainage Area 001.

Indiana's NPDES program requires all construction sites disturbing more than one acre, many industrial sites, and all designated Municipal Separate Storm Sewer Systems (MS4s) to obtain NPDES permit coverage.

The Indiana Department of Environmental Management (IDEM) is responsible for administering the state's stormwater management program. State stormwater requirements are mirrored after those in the federal NPDES program, requiring that stormwater be treated to the maximum extent practicable. Indiana's NPDES program requires all construction sites disturbing more than one acre, many industrial sites, and all designated Municipal Separate Storm Sewer Systems (MS4s) to obtain NPDES permit coverage. The Aloca-Warrick facility is required to have a NPDES permit.

The NPDES Permit #IN0001155 for Alcoa Inc., Warrick Operations, regulates process only wastewater at Outfalls 002 and 203, and combined process and wet weather flows at 001, 103, 303, 403, 004, 005, and 006. Under the NPDES program, the Alcoa Warrick facility has 10 industrial monitored outfalls and 12 monitored stormwater outfalls. The NPDES permit that the facility was operating under at the time of the inspection has an effective date of November 11, 2007 and an expiration date of October 31, 2012. The permit was signed on September 24, 2007. SAIC conducted the NPDES inspection of the Alcoa Warrick facility.

1) SAIC performed a Discharge Monitoring Report spot check on all of the outfalls permitted under NPDES and storm water from January 2007 – June 2009. The following exceedances were observed during the January 2007 – June 2009 time period:

- Daily maximum violations of Iron, Zinc, Aluminum, and Copper for Outfall 012S during September 2007;
- Daily maximum violation of Aluminum for Outfall 023S during August 2007;
- Daily maximum violations of Iron and Aluminum for Outfall 024S during August 2007;
- Average violation of Total Suspended Solids (TSS) for Outfall 103 during September 2008;
- Average violation of (TSS) for Outfall 103 during October 2008;
    - The facility provided a response to this violation in their self-monitoring report: "At this time we believe the issue to be associated with the final settling pond filling in with salt and dirt and that material was "soured" during higher flow volumes releasing that material to the outfall weir. Dredging of this pond has commenced to return this pond to normal working condition."
- Daily maximum violations of Oil and Grease for Outfall 006A during September 2008;
    - The facility provided a response to this violation in their self-monitoring report: "At this time, it is believed that these events were attributed to a plugged oil/water separator due to heavy rains in early summer and a fire event. The dirt was removed from the separator and returned to services. Oil and Grease measurements have returned to normal ranges of 0-2 ppm."
- SAIC noticed that some parameter's values in certain outfalls increased significantly from one day to the next. However, no violations occurred because of this.

- Mr. Were stated the reasoning of the increase was “due to an arithmetic error in the formula used to calculate the values. The DMRs were submitted to the State last month with the corrected calculations.”

2) During the DMR check, SAIC also observed transcription and transposing errors between the DMRs and MMRs. For example, transcription errors between the DMR and MMR occurred for Outfall 003 during the month of December 2007 for Aluminum and Flow.

2) Most of the analysis for Alcoa’s outfall sampling is performed at their in-house lab. The only parameters analyzed at outside labs are toxicity and TKN. The lab performing the toxicity analysis is Advent Group. Heritage Environmental Services analyzes for TKN and performs the facility’s backup analysis. SAIC performed a spot check of all of the raw analytical lab data, tables, and chain of custodies provided by the lab. Also, the most recent DMRQA report for the Alcoa lab was reviewed. A copy of their DMRQA certification was provided.

3) Samples for each of the outfalls appeared to be collected and monitored at their correct time intervals per the NPDES permit. The acute toxicity test was properly sampled at Outfall 003 every six months as stated in the permit. All results observed no toxicity to Outfall 003 effluent.

4) SAIC observed all of the permitted outfalls and most of the stormwater outfalls. On a few of the outfalls, the outfall signs were not in the appropriate locations. For example, Outfall 003 is located at the stream bank discharging into the Ohio River. However, the outfall sign was at the top of the road and not properly placed at the stream bank as stated in the NPDES permit. Mr. Were stated that the facility is in the process of placing permanent markers in their correct locations. There were no other discrepancies observed at the time of the outfall review.

7.0 References

SAIC. 2009. *Quality Assurance Project Plan for Power Plant Waste Management Compliance Investigations*. Science Applications International Corporation. June 2009.

APPENDIX A

GOOGLE EARTH PHOTOGRAPHS

Overview of the Alcoa-Warrick Operations facility

Alcoa Warrick Operations Central Area

APPENDIX B

CHAIN OF CUSTODY FORMS

Microbac

Baltimore Division
Baltimore, MD 21224
Tel: 410-633-1800
Fax: 410-633-6553
www.microbac.com

Sample Submittal
Chain of Custody Record

Work Order Number:

Page 1 of 1

Client Name: SAIC	Project: EPA CCW	Turnaround Time (Required)	QC and EDD Type (Required)
Address: 12100 Sunset Hills Road	Location: Evansville, IN	[✓] Standard	[ ] Level I (NAC) / [✓] EDD
City, State, Zip: Reston, VA 20190	PO #	[ ] RUSH* (notify lab)	[ ] Level II ** / Format: Excel
Contact: Brandon Peebles	Compliance Monitoring? [✓] Yes [ ] No	(needed by)	[✓] Level III ** / Comments:
Telephone #: 703-375-2264	(1)Agency/Program: EPA		[ ] Level IV **

Sampled by (PRINT): Brandon Peebles Sampler Signature: [signature] Sampler Phone #: 703-375-2264

Send Report via [✓] e-mail (address) peeblesb@saic.com [✓] Mail [ ] Telephone [ ] Fax (fax #)

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	TCLP	Volatiles	SVOC/PCB	Metals	Ignitability	Reactivity, pH				Comments
AW-1	WW	✓			8/12/09	9:05	12	✓	✓	✓	✓	✓	✓				

Possible Hazard Identification [ ] Hazardous [✓] Non-Hazardous [ ] Radioactive Sample Disposition [✓] Dispose as appropriate [ ] Return [ ] Archive

	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received By (signature)	Printed Name/Affiliation
Number of Containers: / Cooler Number:	[signature]	Brandon Peebles	8/12/09 18:06		
Temp upon receipt(°C):	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received By (signature)	Printed Name/Affiliation
Sample Received on Ice or Refrigerated from Client: Yes / No	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received for Lab By (signature)	Printed Name/Affiliation

501 6.08.07 ** Surcharge May Apply to add'l QC Packages ** WHITE - LAB YELLOW - REPORT PINK - CLIENT RECEIPT Page 1 2

Microbac

Baltimore Division
Baltimore, MD 21224
Tel: 410-633-1800
Fax: 410-633-6553
www.microbac.com

Sample Submittal
Chain of Custody Record

Work Order Number:

Page 1 of 1

Client Name: SAIC	Project: EPA CCW	Turnaround Time (Required)	QC and EDD Type (Required)
Address: 12100 Sunset Hills Rd	Location: Evansville, IN	[✓] Standard	[ ] Level I (NAC) / [✓] EDD
City, State, Zip: Reston, VA 20190	PO #	[ ] RUSH* (notify lab)	[ ] Level II ** / Format: Excel
Contact: Brandon Peebles	Compliance Monitoring? [✓] Yes [ ] No	(needed by)	[✓] Level III ** / Comments:
Telephone #: 703-375-2264	(1)Agency/Program: EPA		[ ] Level IV **

Sampled by (PRINT): Brandon Peebles Sampler Signature: [signature] Sampler Phone #: 703-375-2264

Send Report via: [✓] e-mail (address) peeblesb@saic.com [✓] Mail [ ] Telephone [ ] Fax (fax #)

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

Requested Analysis

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	TCLP	Volatiles	SVOC/PCB	Metals	Ignitability	Reactivity, pH				Comments
AW-2	WW	✓			8/12/09	10:04	12	✓	✓	✓	✓	✓	✓				

Possible Hazard Identification: [ ] Hazardous [✓] Non-Hazardous [ ] Radioactive

Sample Disposition: [✓] Dispose as appropriate [ ] Return [ ] Archive

Number of Containers:	Relinquished By (signature): [signature]	Printed Name/Affiliation: Brandon Peebles	Date/Time: 8/12/09 18:08	Received By (signature)	Printed Name/Affiliation
Cooler Number: / Temp upon receipt(°C):	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received By (signature)	Printed Name/Affiliation
Sample Received on Ice or Refrigerated from Client: Yes / No	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received for Lab By (signature)	Printed Name/Affiliation

** Surcharge May Apply to add'l QC Packages ** WHITE - LAB YELLOW - REPORT PINK - CLIENT RECEIPT Page 1 2

Microbac

Baltimore Division
Baltimore, MD 21224
Tel: 410-633-1800
Fax: 410-633-6553
www.microbac.com

Sample Submittal
Chain of Custody Record

Work Order Number:

Page 1 of 1

Client Name: SAIC	Project: EPA CCW	**Turnaround Time (Required)**	**QC and EDD Type (Required)**
Address: 12100 Sunset Hills Rd	Location: Evansville, IN	[✓] Standard	[ ] Level I (NAC) · [✓] EDD
City, State, Zip: Reston, VA 20190	PO #	[ ] RUSH* (notify lab)	[ ] Level II ** · Format: Excel
Contact: Brandon Peebles	Compliance Monitoring? [✓] Yes [ ] No	______ (needed by)	[✓] Level III ** · Comments:
Telephone #: 703-375-2264	(1)Agency/Program: EPA		[ ] Level IV **

Sampled by (PRINT): Brandon Peebles Sampler Signature: [signature] Sampler Phone #: 703-375-2264

Send Report via: [✓] e-mail (address) peeblesb@saic.com [✓] Mail [ ] Telephone [ ] Fax (fax #)

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

Requested Analysis

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	TCLP	Volatiles	SVOC/PCB	Metals	Ignitability/	Reactivity, pH			Comments
AW-3	WW	✓			8/12/09	11:00	12	✓	✓	✓	✓	✓	✓			

Possible Hazard Identification: [ ] Hazardous [✓] Non-Hazardous [ ] Radioactive

Sample Disposition: [✓] Dispose as appropriate [ ] Return [ ] Archive

Number of Containers:	Relinquished By (signature): [signature]	Printed Name/Affiliation: Brandon Peebles	Date/Time: 8/12/09 18:15	Received By (signature)	Printed Name/Affiliation
Cooler Number: Temp upon receipt(°C):	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received By (signature)	Printed Name/Affiliation
Sample Received on Ice or Refrigerated from Client: Yes / No	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received for Lab By (signature)	Printed Name/Affiliation

** May apply to add'l QC Packages ** WHITE - LAB YELLOW - REPORT PINK - CLIENT RECEIPT Page 1 2

Microbac

Baltimore Division
Baltimore, MD 21224
Tel: 410-633-1800
Fax: 410-633-6553
www.microbac.com

Sample Submittal
Chain of Custody Record

Work Order Number: 09H0401

Page 1 of 1

Client Name	SAIC	Project	EPA CCW — NPDES YES/NO
Address	12100 Sunset Hills Rd	Location	Evansville, IN
City, State, Zip	Reston, VA 20190	PO #	
Contact	Brandon Peebles	MDE Drinking Water Certified Sampler? YES / NO	
Telephone #	703-375-2264	Certification #	

Turnaround Time (Required): [✓] Standard; [ ] RUSH* (notify lab); ________ (needed by)

QC and EDD Type (Required): [ ] Level I (NAC); [ ] Level II **; [✓] Level III **; [ ] Level IV **; [✓] EDD; Format: Excel; Comments:

Sampled by (PRINT): Brandon Peebles Sampler Signature: [signature] Sampler Phone #: 703-375-2264

Send Report via [✓] e-mail (address) peeblesb@saic.com [✓] Mail [ ] Telephone [ ] Fax (fax #) ________ Hard Copy [✓] YES [ ] NO

* **Matrix Types:** Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

Requested Analysis

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	TCLP	Volatiles	SVOC/PCB	Metals	Ignitability	Reactivity, pH				Comments
AW-4	WW	✓			8/12/09	11:53	12	✓	✓	✓	✓	✓	✓				TCLP VOCs recv'd w/ headspace ½ mm [initials] 8/13/09

Possible Hazard Identification [ ] Hazardous [✓] Non-Hazardous [ ] Radioactive
Sample Disposition [✓] Dispose as appropriate [ ] Return [ ] Archive

	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received By (signature)	Printed Name/Affiliation
Number of Containers: / Cooler Number:	[signature]	Brandon Peebles	8/12/09 19:00	Fed Ex	
Temp upon receipt(°C): 1.6	Fed Ex		8/13/09 1000	Melanie Duszynski	
Sample Received on Ice or Refrigerated from Client: (Yes) / No	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received for Lab By (signature)	Printed Name/Affiliation

501 6.09 ** Surcharge May Apply to add'l QC Packages ** WHITE - LAB YELLOW - REPORT PINK - CLIENT RECEIPT Page 1 2

Microbac

Baltimore Division
Baltimore, MD 21224
Tel: 410-633-1800
Fax: 410-633-6553
www.microbac.com

Sample Submittal
Chain of Custody Record

Work Order Number:

Page 1 of 1

Client Name: SAIC	Project: EPA CCW	**Turnaround Time (Required)**	**QC and EDD Type (Required)**
Address: 12100 Sunset Hills Rd	Location: Evansville, IN	[✓] Standard	[ ] Level I (NAC) / [✓] EDD
City, State, Zip: Reston, VA 20190	PO #	[ ] RUSH* (notify lab)	[ ] Level II ** / Format: Excel
Contact: Brandon Peebles	Compliance Monitoring? [✓] Yes [ ] No	(needed by)	[✓] Level III ** / Comments:
Telephone #: 703-375-2264	(1)Agency/Program: EPA		[ ] Level IV **

Sampled by (PRINT): Brandon Peebles   Sampler Signature: [signature]   Sampler Phone #: 703-375-2264

Send Report via [✓] e-mail (address) peeblesb@saic.com   [✓] Mail [ ] Telephone [ ] Fax (fax #)

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

Requested Analysis

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	TCLP	Volatiles	Ignit. React., pH	SVOC/PCB	TSS	Total Metals				Comments
AW-5	WW	✓			8/12/09	13:45	2					✓	✓				* Total ~~Metals~~ analysis; Also
AW-6	WW	✓			8/12/09	14:09	2					✓	✓				make sure to analyze Copper,
AS-1	S		✓		8/12/09	16:52	6	✓	✓	✓	✓						Iron, Aluminum, Antimony,
AS-2	S		✓		8/12/09	17:21	6	✓	✓	✓	✓						Chromium, Nickel, Zinc, Fluoride,
																	Cyanide

Possible Hazard Identification [ ] Hazardous [✓] Non-Hazardous [ ] Radioactive   Sample Disposition [✓] Dispose as appropriate [ ] Return [ ] Archive

Number of Containers:	Relinquished By (signature) [signature]	Printed Name/Affiliation Brandon Peebles	Date/Time 8/12/09 18:18	Received By (signature)	Printed Name/Affiliation
Cooler Number: Temp upon receipt(°C):	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received By (signature)	Printed Name/Affiliation
Sample Received on Ice or Refrigerated from Client: Yes / No	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received for Lab By (signature)	Printed Name/Affiliation

501 6.06.07 ** Surcharge May Apply to add'l QC Packages ** WHITE - LAB YELLOW - REPORT PINK - CLIENT RECEIPT Page 1 2

Microbac

Baltimore Division
Baltimore, MD 21224
Tel: 410-633-1800
Fax: 410-633-6553
www.microbac.com

Sample Submittal
Chain of Custody Record

Work Order Number:

Page 1 of 1

Client Name: SAIC	Project: EPA CCW	**Turnaround Time (Required)**	**QC and EDD Type (Required)**
Address: 12100 Sunset Hills Rd	Location: Evansville, TN	[✓] Standard	[ ] Level I (NAC) / [✓] EDD
City, State, Zip: Reston, VA 20190	PO #	[ ] RUSH* (notify lab)	[ ] Level II ** / Format: Excel
Contact: Brandon Peebles	Compliance Monitoring? [✓] Yes [ ] No	______ (needed by)	[✓] Level III ** / Comments:
Telephone #: 703-375-2264	(1)Agency/Program: EPA		[ ] Level IV **

Sampled by (PRINT): Brandon Peebles Sampler Signature: [signature] Sampler Phone #: 703-375-2264

Send Report via [✓] e-mail (address) peeblesb@saic.com [✓] Mail [ ] Telephone [ ] Fax (fax #)

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

Requested Analysis

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	TCLP	Volatiles	SVOC/PCBs	Metals	Ignitability	Reactivity, pH				Comments
AW-7	WW	✓			8/12/09	14:58	2	✓	✓	✓	✓	✓	✓				

Possible Hazard Identification [ ] Hazardous [✓] Non-Hazardous [ ] Radioactive Sample Disposition [✓] Dispose as appropriate [ ] Return [ ] Archive

Number of Containers:	Relinquished By (signature) [signature]	Printed Name/Affiliation Brandon Peebles	Date/Time 8/12/09 18:30	Received By (signature)	Printed Name/Affiliation
Cooler Number: Temp upon receipt(°C):	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received By (signature)	Printed Name/Affiliation
Sample Received on Ice or Refrigerated from Client: Yes / No	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received for Lab By (signature)	Printed Name/Affiliation

** Surcharges May Apply to add'l QC Packages ** WHITE - LAB YELLOW - REPORT PINK - CLIENT RECEIPT Page 1 2

Microbac

Baltimore Division
Baltimore, MD 21224
Tel: 410-633-1800
Fax: 410-633-6553
www.microbac.com

Sample Submittal
Chain of Custody Record

Work Order Number:

Page 1 of 1

Client Name: SAIC	Project: EPA CCW	**Turnaround Time (Required)**	**QC and EDD Type (Required)**
Address: 12100 Sunset Hills Rd	Location: Evansville, IN	[✓] Standard	[ ] Level I (NAC) / [✓] EDD
City, State, Zip: Reston VA 20190	PO #	[ ] RUSH* (notify lab)	[ ] Level II ** / Format: Excel
Contact: Brandon Peebles	Compliance Monitoring? [✓] Yes [ ] No	(needed by)	[✓] Level III ** / Comments:
Telephone #: 703-375-2264	(1)Agency/Program: EPA		[ ] Level IV **

Sampled by (PRINT): Brandon Peebles   Sampler Signature: [signature]   Sampler Phone #: 703-375-2264

Send Report via [✓] e-mail (address) peeblesb@saic.com   [✓] Mail   [ ] Telephone   [ ] Fax (fax #)

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

Requested Analysis

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	TCLP	Volatiles	SVOC/PCBs	Metals	Ignitability	Reactivity, pH				Comments
AW-8	WW	✓			8/12/09	16:02	12	✓	✓	✓	✓	✓	✓				
AW-8B	WW	✓			8/12/09	16:00	2		✓								

Possible Hazard Identification [ ] Hazardous [✓] Non-Hazardous [ ] Radioactive   Sample Disposition [✓] Dispose as appropriate [ ] Return [ ] Archive

Number of Containers:	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received By (signature)	Printed Name/Affiliation
Cooler Number:	[signature]	Brandon Peebles	8/12/09 18:34		
Temp upon receipt(°C):	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received By (signature)	Printed Name/Affiliation
Sample Received on Ice or Refrigerated from Client: Yes / No	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received for Lab By (signature)	Printed Name/Affiliation

WHITE - LAB   YELLOW - REPORT   PINK - CLIENT RECEIPT   Page 1 2

Microbac

Baltimore Division
Baltimore, MD 21224
Tel: 410-633-1800
Fax: 410-633-6553
www.microbac.com

Sample Submittal
Chain of Custody Record

Work Order Number:

Page 1 of 1

Client Name: SAIC	Project: EPA CCW	**Turnaround Time (Required)**		**QC and EDD Type (Required)**	
Address: 12100 Sunset Hills Rd	Location: Evansville, IN	[✓] Standard		[ ] Level I (NAC)	[✓] EDD
City, State, Zip: Reston, VA 20190	PO #	[ ] RUSH* (notify lab)		[ ] Level II **	Format: Excel
Contact: Brandon Peebles	Compliance Monitoring? [✓] Yes [ ] No	______ (needed by)		[✓] Level III **	Comments:
Telephone #: 703-375-2261	(1)Agency/Program: EPA			[ ] Level IV **	

Sampled by (PRINT): Brandon Peebles Sampler Signature: [signature] Sampler Phone #: 703-375-2261

Send Report via: [✓] e-mail (address) peeblesb@saic.com [✓] Mail [ ] Telephone [ ] Fax (fax #)

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	TCLP	Volatiles	SVOC / PCBs	Metals	Ignitability	Reactivity, pH				Comments
AW-9	WW	✓			8/12/09	16:19	12	✓	✓	✓	✓	✓	✓				

Possible Hazard Identification: [ ] Hazardous [✓] Non-Hazardous [ ] Radioactive

Sample Disposition: [✓] Dispose as appropriate [ ] Return [ ] Archive

Number of Containers:	Relinquished By (signature): [signature]	Printed Name/Affiliation: Brandon Peebles	Date/Time: 8/12/09 18:38	Received By (signature)	Printed Name/Affiliation
Cooler Number: Temp upon receipt(°C):	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received By (signature)	Printed Name/Affiliation
Sample Received on Ice or Refrigerated from Client: Yes / No	Relinquished By (signature)	Printed Name/Affiliation	Date/Time	Received for Lab By (signature)	Printed Name/Affiliation

501 6.08.07 ** Surcharge May Apply to add'l QC Packages ** WHITE - LAB YELLOW - REPORT PINK - CLIENT RECEIPT Page 1 2

APPENDIX C

LAB RESULTS

QUALIFIER	DESCRIPTION
#	QC not in acceptance limits.
A2	Results expressed as mg/L TCLP extract after performing total analysis of the sample and adjusting the result to reflect the 20 times dilution in the TCLP extraction procedure.
B	Analyte is found in method blank.
B2	Target analyte detected in method blank at or above reporting limit. Concentration found in the samples was 20 times the concentration found in the method blank.
B3	Target analyte detected in method blank at or above reporting limit. The analyte concentration was below the reporting limit.
D	Sample Diluted
E3	Concentration estimated due to internal standard recoveries out of acceptance limits.
H1	Sample analyzed past maximum recommended holding time.
H6	Sample received past holding time; analysis best performed at time of collection.
L2	The LCS recovery was above the laboratory acceptance limits. The target analyte concentration was below the reporting limit. No negative impact on the data.
L3	The LCS recovery was below the laboratory acceptance limits. The reported result is estimated.
M1	The matrix spike recovery was out of acceptance limits. The post digestion spike recovery was acceptable.
M3	The matrix spike recovery was biased high, the LCS recovery was acceptable.
M5	The matrix spike recovery was biased low, the reported result is estimated.
M8	The Post Digestion Spike recovery was out of acceptance limits due an inappropriate spike amount used for the high sample concentration.
ND	Not Detected
R1	Sample Duplicate RPD was out of acceptance limits.
R2	MS/MSD RPD was out of acceptance limits. Recoveries met acceptance limits.
R3	Sample Duplicate RPD was out of acceptance limits. The result concentration was within 5 times the reporting limit and the difference was less than the reporting limit.
R4	MS/MSD RPD was out of acceptance limits.
S1	Surrogate recovery was above laboratory acceptance limits. No negative impact on the data.
S3	Surrogate recovery was below laboratory acceptance limits. Re-extraction/re-analysis confirms low recovery due to matrix interference.
S4	Surrogate recovery was below laboratory acceptance limits. Reported data is estimated.
U	Sample concentration is less than the MDL.
V1	CCV recovery was above acceptance limits. The concentration was below the reporting limit.
Z10	Analyte detected in Continuing Calibration Blank, samples were non-detect for analyte. No impact on data.
Z8	>200 °F

VOC DATA																														
	Aqueous Samples																								Soil Samples					
Field Sample ID	AW-1			AW-2			AW-3			AW-4			AW-7			AW-8			AW-8B			AW-9			AS-1			AS-2		
Lab Sample ID	09H0401-01			09H0401-02			09H0401-03			09H0401-04			09H0401-09			09H0401-10			09H0401-11			09H0401-12			09H0401-07			09H0401-08		
Matrix	Water			Water			Water			Water			Water			Water			Water			Water			Solid			Solid		
Sample Date	08/12/2009 09:05:00			08/12/2009 10:04:00			08/12/2009 11:00:00			08/12/2009 11:53:00			08/12/2009 14:58:00			08/12/2009 16:02:00			08/12/2009 16:00:00			08/12/2009 16:19:00			08/12/2009 16:52:00			08/12/2009 17:21:00		
Units	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/kg	Lab Q	DVQ	ug/kg	Lab Q	DVQ
1,1,1,2-Tetrachloroethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,1,1-Trichloroethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,1,2,2-Tetrachloroethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,1,2,2-Tetrachloroethylene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,1,2-Trichloroethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,1,2-Trichloroethylene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,1-Dichloroethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,1-Dichloroethylene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,1-Dichloropropylene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,2,3-Trichloropropane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,2,3-Trichlorobenzene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,2,4-Trimethylbenzene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,2-Dibromo-3-chloropropane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,2-Dibromoethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,2-Dichloroethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,2-Dichloropropane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,3,5-Trimethylbenzene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
1,3-Dichloropropane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
2,2-Dichloropropane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
2-Chloroethyl Vinyl Ether	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
2-Chlorotoluene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
4-Chlorotoluene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
4-Isopropyltoluene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Acetone	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	1700	D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Acetonitrile	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Acrolein	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Acrylonitrile	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Allyl Chloride (3-Chloropropylene)	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Benzene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Bromobenzene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Bromochloromethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Bromodichloromethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Bromoform	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Bromomethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Butylbenzene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Carbon disulfide	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Carbon Tetrachloride	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Chlorobenzene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Chloroethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Chloroform	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Chloromethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Chloroprene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
cis-1,2-Dichloroethylene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
cis-1,3-Dichloropropylene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Dibromochloromethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Dibromomethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Dichlorodifluoromethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Ethyl Methacrylate	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Ethylbenzene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Hexachlorobutadiene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Iodomethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Isopropylbenzene (Cumene)	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
m,p-Xylenes	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Methacrylonitrile	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Methyl Butyl Ketone (2-Hexanone)	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Methyl Ethyl Ketone (2-Butanone)	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Methyl Isobutyl Ketone	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Methyl Methacrylate	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Methylene Chloride	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Methyl-tert-Butyl Ether	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
o-Xylene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Propionitrile (Ethyl Cyanide)	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Propylbenzene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
sec-Butylbenzene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Styrene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
tert-Butylbenzene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Toluene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Total Xylenes	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
trans-1,2-Dichloroethylene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
trans-1,3-Dichloropropylene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
trans-1,4-Dichloro-2-butene	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Trichlorofluoromethane	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Vinyl acetate	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	
Vinyl chloride	ND	U, D		ND	U, D		ND	U, D		ND	U, D	UJ	ND	U, D		ND	U, D		ND	U, D		ND	U		ND	U, D		ND	U, D	

SVOC DATA																											
	Aqueous Samples																					**Soil Samples**					
Field Sample ID	AW-1			AW-2			AW-3			AW-4			AW-7			AW-8			AW-9			AS-1			AS-2		
Lab Sample ID	09H0401-01			09H0401-02			09H0401-03			09H0401-04			09H0401-09			09H0401-10			09H0401-12			09H0401-07			09H0401-08		
Matrix	Water			Water			Water			Water			Water			Water			Water			Solid			Solid		
Sample Date	08/12/2009 09:05:00			08/12/2009 10:04:00			08/12/2009 11:00:00			08/12/2009 11:53:00			08/12/2009 14:58:00			08/12/2009 16:02:00			08/12/2009 16:19:00			08/12/2009 16:52:00			08/12/2009 17:21:00		
Units	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/kg	Lab Q	DVQ	ug/kg	Lab Q	DVQ
1,2,4-Trichlorobenzene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	UJ
1,2-Dichlorobenzene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
1,2-Diphenylhydrazine	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
1,3-Dichlorobenzene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
1,4-Dichlorobenzene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	UJ
2,4,5-Trichlorophenol	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
2,4,6-Trichlorophenol	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
2,4-Dichlorophenol	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
2,4-Dimethylphenol	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
2,4-Dinitrophenol	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
2,4-Dinitrotoluene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
2,6-Dinitrotoluene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
2-Chloronaphthalene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
2-Chlorophenol	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
2-Methylnaphthalene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
2-Methylphenol	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	R	ND	U	R
2-Nitroaniline	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
2-Nitrophenol	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
3,3'-Dichlorobenzidine	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
3-Nitroaniline	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	R	ND	U	R
4,6-Dinitro-2-methylphenol	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
4-Bromophenyl-phenylether	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
4-Chloro-3-methylphenol	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
4-Chloroaniline	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	E3, U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	
4-Chlorophenyl-phenylether	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
4-Methylphenol, 3-Methylphenol	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	R	ND	U	R
4-Nitroaniline	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
4-Nitrophenol	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	E3, U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	
Acenaphthene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Acenaphthylene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Aniline	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Anthracene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Benz(a)anthracene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Benzidine	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	E3, U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
Benzo[a]pyrene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Benzo[b]fluoranthene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Benzo[g,h,i]perylene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Benzo[k]fluoranthene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Benzoic Acid	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	

SVOC DATA																											
	Aqueous Samples																						Soil Samples				
Field Sample ID	AW-1			AW-2			AW-3			AW-4			AW-7			AW-8			AW-9			AS-1			AS-2		
Lab Sample ID	09H0401-01			09H0401-02			09H0401-03			09H0401-04			09H0401-09			09H0401-10			09H0401-12			09H0401-07			09H0401-08		
Matrix	Water			Water			Water			Water			Water			Water			Water			Solid			Solid		
Sample Date	08/12/2009 09:05:00			08/12/2009 10:04:00			08/12/2009 11:00:00			08/12/2009 11:53:00			08/12/2009 14:58:00			08/12/2009 16:02:00			08/12/2009 16:19:00			08/12/2009 16:52:00			08/12/2009 17:21:00		
Units	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/kg	Lab Q	DVQ	ug/kg	Lab Q	DVQ
Benzyl alcohol	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
bis(2-Chloroethoxy)methane	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Bis(2-Chloroethyl)ether	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Bis(2-chloroisopropyl)ether	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Bis(2-Ethylhexyl)phthalate	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Butylbenzylphthalate	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Carbazole	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	R	ND	U	R
Chrysene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Dibenz[a,h]anthracene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Dibenzofuran	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Diethylphthalate	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Dimethylphthalate	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Di-n-butylphthalate	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Di-n-octylphthalate	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Fluoranthene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Fluorene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Hexachlorobenzene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Hexachlorobutadiene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Hexachlorocyclopentadiene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Hexachloroethane	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Indeno[1,2,3-cd]pyrene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Isophorone	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Naphthalene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Nitrobenzene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
N-Nitrosodimethylamine	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
N-Nitroso-di-n-propylamine	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
N-Nitrosodiphenylamine	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Pentachlorophenol	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Phenanthrene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Phenol	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	810	D		ND	U		ND	U		ND	U	UJ	ND	U	
Pyrene	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	
Pyridine	ND	U		ND	U	UJ	ND	U		ND	E3, U	UJ	ND	U		ND	U		ND	U		ND	U	UJ	ND	U	

PCB DATA												
	Aqueous Samples											
Field Sample ID	AW-1			AW-2			AW-3			AW-4		
Lab Sample ID	09H0401-01			09H0401-02			09H0401-03			09H0401-04		
Matrix	Water			Water			Water			Water		
Sample Date	08/12/2009 09:05:00			08/12/2009 10:04:00			08/12/2009 11:00:00			08/12/2009 11:53:00		
Units	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ
Aroclor 1016	ND	U		ND	U		ND	U		ND	U	
Aroclor 1221	ND	U		ND	U		ND	U		ND	U	
Aroclor 1232	ND	U		ND	U		ND	U		ND	U	
Aroclor 1242	ND	U		ND	U		ND	U		ND	U	
Aroclor 1248	ND	U		ND	U		ND	U		ND	U	
Aroclor 1254	ND	U		ND	U		ND	U		ND	U	
Aroclor 1260	ND	U		ND	U		ND	U		ND	U	
Total PCBs	ND	U		ND	U		ND	U		ND	U	

PCB DATA															
										Soil Samples					
Field Sample ID	AW-7			AW-8			AW-9			AS-1			AS-2		
Lab Sample ID	09H0401-09			09H0401-10			09H0401-12			09H0401-07			09H0401-08		
Matrix	Water			Water			Water			Solid			Solid		
Sample Date	08/12/2009 14:58:00			08/12/2009 16:02:00			08/12/2009 16:19:00			08/12/2009 16:52:00			08/12/2009 17:21:00		
Units	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/l	Lab Q	DVQ	ug/kg	Lab Q	DVQ	ug/kg	Lab Q	DVQ
Aroclor 1016	ND	U		ND	U		ND	U		ND	U		ND	U	
Aroclor 1221	ND	U		ND	U		ND	U		ND	U		ND	U	
Aroclor 1232	ND	U		ND	U		ND	U		ND	U		ND	U	
Aroclor 1242	ND	U		ND	U		ND	U		ND	U		ND	U	
Aroclor 1248	ND	U		ND	U		ND	U		ND	U		ND	U	
Aroclor 1254	ND	U		ND	U		ND	U		ND	U		ND	U	
Aroclor 1260	ND	U		ND	U		ND	U		ND	U		ND	U	
Total PCBs	ND	U		ND	U		ND	U		ND	U		ND	U	

METALS, CHEM DATA

Field Sample ID	AW-1			AW-2			AW-3			AW-4		
Lab Sample ID	09H0401-01			09H0401-02			09H0401-03			09H0401-04		
Matrix	Water			Water			Water			Water		
Sample Date	08/12/2009 09:05:00			08/12/2009 10:04:00			08/12/2009 11:00:00			08/12/2009 11:53:00		
Units	mg/l	Lab Q	DVQ	mg/l	Lab Q	DVQ	mg/l	Lab Q	DVQ	mg/l	Lab Q	DVQ
Aluminum	0.89			ND			0.28			1.1		
Antimony	ND			ND			ND			ND		
Arsenic	ND			ND			ND			ND		
Barium	0.086			0.11			0.014			0.042		
Beryllium	ND			ND			ND			ND		
Cadmium	0.00078			0.00085			ND			0.00064		
Calcium	68	B2		74	B2		13	B2		36	B2	
Chromium	ND			ND			ND			0.0017		
Cobalt	ND			ND			ND			ND		
Copper	0.0054			ND			0.0053			0.0027		
Iron	ND			0.33			0.29			1.5		
Lead	ND			ND			ND			ND		
Magnesium	14			14			3.2			9.6		
Manganese	ND			0.66			0.021			0.071		
Nickel	ND			ND			ND			ND		
Potassium	5.0		J	5.3		J	1.1		J	3.3		J
Selenium	ND			ND			ND			ND		
Silver	ND	B3		ND	B3		ND	B3		ND	B3	
Sodium	29			30			7.1			16		
Thallium	ND			ND			ND			ND		
Vanadium	ND			ND			0.00087			0.0021		
Zinc	ND			ND			ND			ND		
Mercury	ND			ND			ND			ND		
pH	7.5	H6	J	7.8	H6	J	7.9	H6	J	7.6	H6	J
% Solids												
Ignitability	>200 °F			>200 °F			>200 °F			>200 °F		
Reactive Cyanide	ND		J	ND		J	ND		J	ND		J
Reactive Sulfide	ND	H1	J	ND	H1	J	ND	H1	J	ND	H1	J
Total CN												
TSS												

Field Sample ID	AW-5			AW-5-dissolved			AW-6			AW-6-dissolved			AW-7		
Lab Sample ID	09H0401-05			09H0401-05			09H0401-06			09H0401-06			09H0401-09		
Matrix	Water			Water			Water			Water			Water		
Sample Date	08/12/2009 13:45:00			08/12/2009 13:45:00			08/12/2009 14:09:00			08/12/2009 14:09:00			08/12/2009 14:58:00		
Units	mg/l	Lab Q	DVQ	mg/l	Lab Q	DVQ	mg/l	Lab Q	DVQ	mg/l	Lab Q	DVQ	mg/l	Lab Q	DVQ
Aluminum	0.22			ND			0.57			0.093			0.53		
Antimony	ND			ND			ND			ND			ND		
Arsenic	0.0057			0.0056			ND			ND			ND		
Barium	0.061			0.047			0.057			0.045			0.055		
Beryllium	ND			ND			ND			ND			ND		
Cadmium	0.0031			ND			0.0034			ND			0.0037		
Calcium	140	B2		130			69	B2		64			60	B2	
Chromium	0.0017			ND			ND			ND			ND		
Cobalt	ND			ND			ND			ND			ND		
Copper	0.0015			ND			0.0046			ND			0.0035		
Iron	0.11			ND			0.11			ND			0.21		
Lead	ND			ND			ND			ND			ND		
Magnesium	92			84			16			15			17		
Manganese	0.86			ND			0.092			ND			0.053		
Nickel	0.015			ND			ND			ND			ND		
Potassium	8.1		J	7.5		J	7.2		J	6.5		J	7.1		J
Selenium	ND			ND			ND			ND			ND		
Silver	ND	B3		ND			ND	B3		ND			ND	B3	
Sodium	61			56			330			320			390		
Thallium	ND			ND			ND			ND			ND		
Vanadium	0.010			0.0055			ND			ND			ND		
Zinc	ND			ND			0.054			ND			0.10		
Mercury	ND			ND			ND			ND			ND		
pH													8.0	H6	J
% Solids															
Ignitability													>200 °F		
Reactive Cyanide													ND		J
Reactive Sulfide													ND	H1	J
Total CN	ND						ND								
TSS	60						20								

Field Sample ID	AW-8			AW-9			AS-1			AS-2	
Lab Sample ID	09H0401-10			09H0401-12			09H0401-07			09H0401-08	
Matrix	Water			Water			Solid			Solid	
Sample Date	08/12/2009 16:02:00			08/12/2009 16:19:00			08/12/2009 16:52:00			08/12/2009 17:21:00	
Units	mg/l	Lab Q	DVQ	mg/l	Lab Q	DVQ	mg/kg	Lab Q	DVQ	mg/kg	Lab Q
Aluminum	0.10			0.097			14000			400	
Antimony	ND			ND			2.8			ND	
Arsenic	ND			ND			41			2.9	
Barium	0.084			0.083			180		J	6.3	
Beryllium	ND			ND			2.8			ND	
Cadmium	0.00094			0.00095			1.8			1.4	
Calcium	71	B2		70	B2		24000			170000	
Chromium	ND			ND			26			2.3	
Cobalt	ND			ND			ND			ND	
Copper	0.0061			0.0068			25			ND	
Iron	ND			ND			44000			930	
Lead	ND			ND			ND			ND	
Magnesium	15			15			1700			ND	
Manganese	0.0073			0.0071			180			ND	
Nickel	ND			ND			16			ND	
Potassium	5.0		J	4.9		J	1900		J	150	
Selenium	ND			ND			ND			ND	
Silver	ND	B3		ND	B3		ND			ND	
Sodium	41			41			450			ND	
Thallium	ND			ND			ND			ND	
Vanadium	ND			ND			58			ND	
Zinc	ND			ND			78			5.9	
Mercury	ND			ND			ND	D		0.21	D
pH	7.3	H6	J	8.1	H6	J	8.3			7.3	
% Solids							82.13			76.58	
Ignitability	>200 °F			>200 °F			>200 °F			>200 °F	
Reactive Cyanide	ND		J	ND		J	ND		J	ND	
Reactive Sulfide	ND	H1	J	30	H1	J	52	H1	J	13	H1
Total CN											
TSS											

TCLP DATA																												
Field Sample ID		AW-1			AW-2			AW-3			AW-4			AW-7			AW-8			AW-9			AS-1			AS-2		
Lab Sample ID	TCLP	09H0401-01			09H0401-02			09H0401-03			09H0401-04			09H0401-09			09H0401-10			09H0401-12			09H0401-07			09H0401-08		
Matrix	Regulatory	Water			Water			Water			Water			Water			Water			Water			Solid			Solid		
Sample Date	Criteria	08/12/2009 09:05:00			08/12/2009 10:04:00			08/12/2009 11:00:00			08/12/2009 11:53:00			08/12/2009 14:58:00			08/12/2009 16:02:00			08/12/2009 16:19:00			08/12/2009 16:52:00			08/12/2009 17:21:00		
Units	mg/l	mg/l	Lab Q	DVQ	mg/l	Lab Q	DVQ	mg/l	Lab Q	DVQ	mg/kg	Lab Q	DVQ	mg/l	Lab Q	DVQ	mg/l	Lab Q	DVQ	mg/l	Lab Q	DVQ	mg/l	Lab Q	DVQ	mg/l	Lab Q	DVQ
Arsenic	5	ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D	
Barium	100	0.20	D	J	ND	D		ND	D		ND	D		ND	D		0.22	D	J	0.20	D	J	ND	D		ND	D	
Cadmium	1	ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D	
Chromium	5	ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D	
Lead	5	ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D	
Selenium	1	ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D	
Silver	5	ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D	
Mercury	0.2	ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D		ND	D	
1,1,2,2-Tetrachloroethylene	0.07	ND	A2, U		ND	A2, U		ND	A2, U		ND	A2, U	UJ	ND	A2, U		ND	A2, U		ND	U		ND	A2, U, D		ND	A2, U, D	
1,1,2-Trichloroethylene	0.5	ND	A2, U		ND	A2, U		ND	A2, U		ND	A2, U	UJ	ND	A2, U		ND	A2, U		ND	U		ND	A2, U, D		ND	A2, U, D	
1,1-Dichloroethylene	0.7	ND	A2, U		ND	A2, U		ND	A2, U		ND	A2, U	UJ	ND	A2, U		ND	A2, U		ND	U		ND	A2, U, D		ND	A2, U, D	
1,2-Dichloroethane	0.5	ND	A2, U		ND	A2, U		ND	A2, U		ND	A2, U	UJ	ND	A2, U		ND	A2, U		ND	U		ND	A2, U, D		ND	A2, U, D	
Benzene	0.5	ND	A2, U		ND	A2, U		ND	A2, U		ND	A2, U	UJ	ND	A2, U		ND	A2, U		ND	U		ND	A2, U, D		ND	A2, U, D	
Carbon Tetrachloride	0.5	ND	A2, U		ND	A2, U		ND	A2, U		ND	A2, U	UJ	ND	A2, U		ND	A2, U		ND	U		ND	A2, U, D		ND	A2, U, D	
Chlorobenzene	100	ND	A2, U		ND	A2, U		ND	A2, U		ND	A2, U	UJ	ND	A2, U		ND	A2, U		ND	U		ND	A2, U, D		ND	A2, U, D	
Chloroform	6	ND	A2, U		ND	A2, U		ND	A2, U		ND	A2, U	UJ	ND	A2, U		ND	A2, U		ND	U		ND	A2, U, D		ND	A2, U, D	
Methyl Ethyl Ketone (2-Butanone)	200	ND	A2, U		ND	A2, U		ND	A2, U		ND	A2, U	UJ	ND	A2, U		ND	A2, U		ND	U		ND	A2, U, D		ND	A2, U, D	
Vinyl chloride	0.2	ND	A2, U		ND	A2, U		ND	A2, U		ND	A2, U	UJ	ND	A2, U		ND	A2, U		ND	U		ND	A2, U, D		ND	A2, U, D	
1,4-Dichlorobenzene	7.5	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
2,4,5-Trichlorophenol	400	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
2,4,6-Trichlorophenol	2	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
2,4-Dinitrotoluene	0.13	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
2-Methylphenol	200	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
4-Methylphenol, 3-Methylphenol	200	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
Hexachlorobenzene	0.13	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
Hexachlorobutadiene	0.5	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
Hexachloroethane	3	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
Nitrobenzene	2	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
Pentachlorophenol	100	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
Pyridine	5	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
Total Cresols	200	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
Endrin	0.02	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
gamma-BHC	0.4	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
Heptachlor	0.008	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
Heptachlor epoxide		ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
Methoxychlor	10	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
Technical Chlordane	0.3	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
Toxaphene	0.5	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ	ND	U	UJ
2,4,5-TP (Silvex)	10	ND			ND			ND			ND			ND			ND			ND			ND		R	ND		
2,4-D	1	ND			ND			ND			ND			ND			ND			ND			ND		R	ND		

APPENDIX D

COMPLETE LAB PACKAGE

See attached electronic CD